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Automotive Industries
GEO. D. ROBERTS
Advertising Manager

Cable Address ..... Autoland, Philadelphia
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OFFICES

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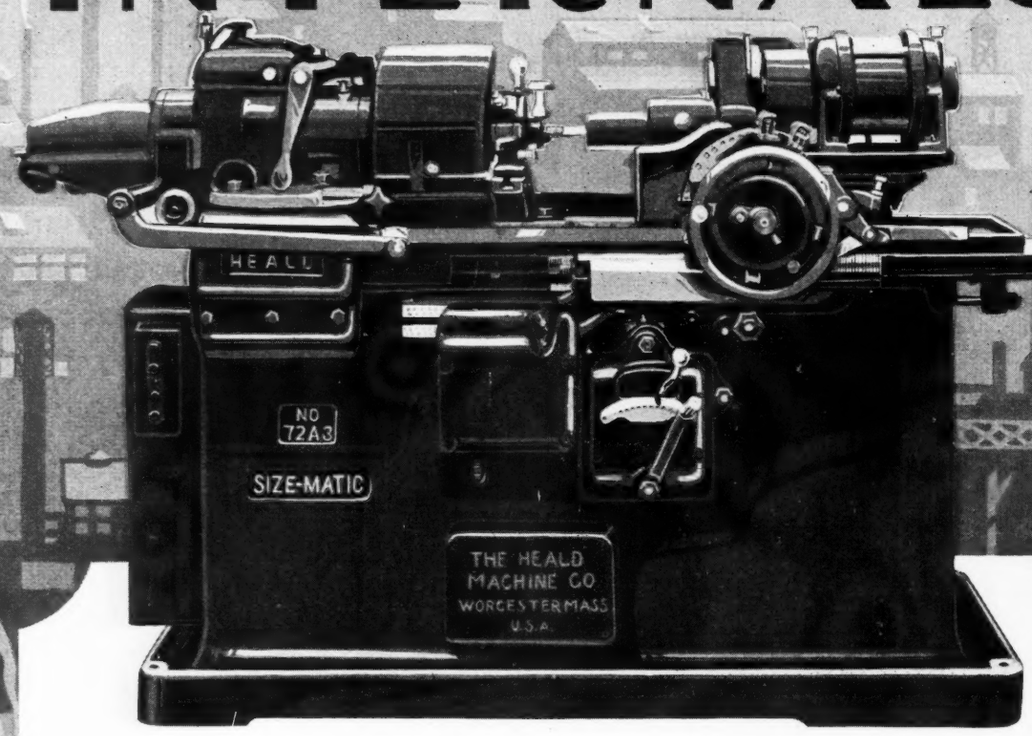

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AUTOMOTIVE INDUSTRIES

VOLUME 59 *Philadelphia, Saturday, August 11, 1928* NUMBER 6

Industry Still Can Find Ways *to* Improve *Trade Practices*

Public's confidence sometimes shaken by sales policies which could be remedied. Packard's recent price reduction on old models is step forward.

By John C. Gourlie

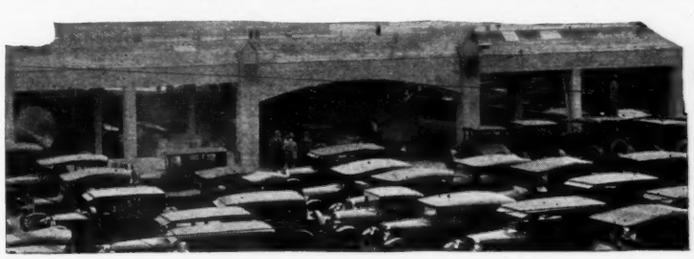
THE automotive industry, by and large, has always played fair with its customers and suppliers. There have been fewer charges of unethical trade practices leveled against automotive manufacturing, probably, than against any other of the leading industries.

A fair price for a sound product and equality of treatment for all has been the rule, adhered to with minor deviations. The public buys automobiles, as a consequence, with a degree of confidence in the seller hardly to be matched in other lines of business.

There are still a number of ways, however, in which the buyers' confidence in the automobile industry and in particular manufacturers can be further strengthened. The sales policies and practices that would have to be altered if this were to be done are not in any sense unethical, but they do, in occasional instances, cause bad feeling on the part of the purchaser.

Some such considerations must have animated the Packard Motor Car Co. in making recent announcement of price cuts on the sixes. Eschewing the usual remarks about "production economies," Packard frankly told the public the reduction was for the purpose of disposing of the current models in preparation for a new line, with certain improvements in detail, to sell at a higher price.

This action was to such an extent a challenge to tradition, which has made the imminence of new models a secret to be withheld from the knowledge not only of the public but of the dealers by all the ingenuity the factory can command, that it has justly been the subject of wide notice and comment within the industry.



Probably the angriest automobile owner is he who has bought a car on the eve of its supersession by a new model. His pride of ownership has been dealt a blow below the belt, and it is virtually useless to point out to him that new models have to be brought out some time or another and that he is just unlucky for not having deferred his purchase a few days. He is, more likely than not, a confirmed enemy of the car and its producer.

Packard, by its latest move, is seeking friends rather than enemies. The purchaser knows he is buying a model which will be superseded within a comparatively short time, and he knows that he is not going to have to take an extraordinarily heavy depreciation in value. If he is dissatisfied, it is his own fault.

Buying Before a Price Cut

Of course, there remains to be considered the man who buys a car just before a price cut, rather than before a new model introduction. He is apt to feel some resentment, but price considerations no longer hold first place in the customer's mind. The satisfaction of having "this year's model" rather than "last year's" seems now to be the vitally important factor from the customer's standpoint.

The Packard policy will bear close study. It is in the experimental stage, and there is a possibility that the advantages will be outweighed by the disadvantages. It may prove that not enough cars can be sold by telling the public the reasons for a price cut to justify the plan. But there is no reason to believe it will fail of its primary purpose — that of building good will for the manufacturer.

The policy of cutting prices to clear out old models, even without attendant

publicity for the reasons for the reductions, is to be commended as a more open way of doing business than giving trading allowances to dealers. A temporary period of more than liberal allowances for used cars can arouse skepticism regarding the policies, products and sales representatives of a company.

Other points in sale policy might profit by even franker methods than have prevailed in the past. The practice, for instance, of putting on equipment at the factory which is not included in the f.o.b. price sometimes causes confusion in the minds of prospects, who find a greater spread between list and delivered prices than they had anticipated. This confusion can only arise if the prospect is not shown clearly the items that enter into the delivered price and the amount of money he is paying on each account. It is extremely unlikely that in any considerable number of cases buyers would object to paying for the equipment, since the items included are usually desired by the owners.

"AN itemized delivered price is a thoroughly sound practice and has a favorable psychological reaction upon the buyer.

"Such an itemization is customarily favored by the factory but not always followed in practice by the distributor and dealer. The factory is justified in insisting upon protection of the buyer's interest in this respect."

An itemized delivered price is a thoroughly sound practice and has a favorable psychological reaction upon the buyer. Such an itemization is customarily favored by the factory but not always followed in practice by the distributor and dealer. The factory is justified in insisting upon protection of the buyer's interest in this respect.

Discussion of this point brings up another closely allied. It is a fruitful question for speculation whether buyers will not some day be inquiring why cars are sold f.o.b. the city in which the main plant is located when the vehicle is actually turned out at a local assembly plant. Of course the parts are manufactured at headquarters and there is a freight and packing cost in shipping the parts that is not such a great deal smaller than the cost of shipping the whole automobile would be.

Public Wants to be Told

But the public may want to be told about this, and may want to be assured that the freight charge in the delivered price covers only the cost of shipping the parts for assembly. Only a few companies are faced with this situation, but they produce a majority of the country's automobiles.

Greater attention to delivered prices has been given by factories in recent years than ever before; all in pursuance of the intention to see that the buyer obtains the full value inherent in the low price placed on the car by the manufacturer. The movement went so far that the a.y.d. system was experimentally adopted by one company; it failed in the presence of local competition not so restricted, proving a disadvantage to the dealer instead of the advantage it should have been under ideal conditions.

There is no doubt that delivered prices are frequently loaded; sometimes different prices for the same car are quoted by different dealers in the same line in a single city. This is not the way to cultivate confidence, and although the situation is not susceptible readily to factory control, continuous efforts at betterment should have their effect.

Some of the truck companies, by declining to quote list prices, have maintained a policy widely divergent from the tendency in the passenger car business. This is not the place to argue the pros and cons of an involved and highly controversial subject, but it seems fairly plain that both policies, differing so much in fundamentals, cannot be right. One manufacturer advertises a price and the other leaves it open to negotiation, in effect.

It is held, to be sure, that list prices are meaningless so long as trade-ins are involved; the latitude in allowances means that the actual price is fixed by negotiation in any event. But what of the buyer without a car to trade? What of the buyer who has a trade and who really wants to know what he is being allowed?

Public reaction to price policies in the end will determine their validity. It is worthy of note that some highly successful companies, delivering indubitably worthy products, have withheld list prices from publication. But with other influential factors in the business emphasizing and itemizing list and delivered prices, the time for a real struggle between the two plans seems to be at hand.

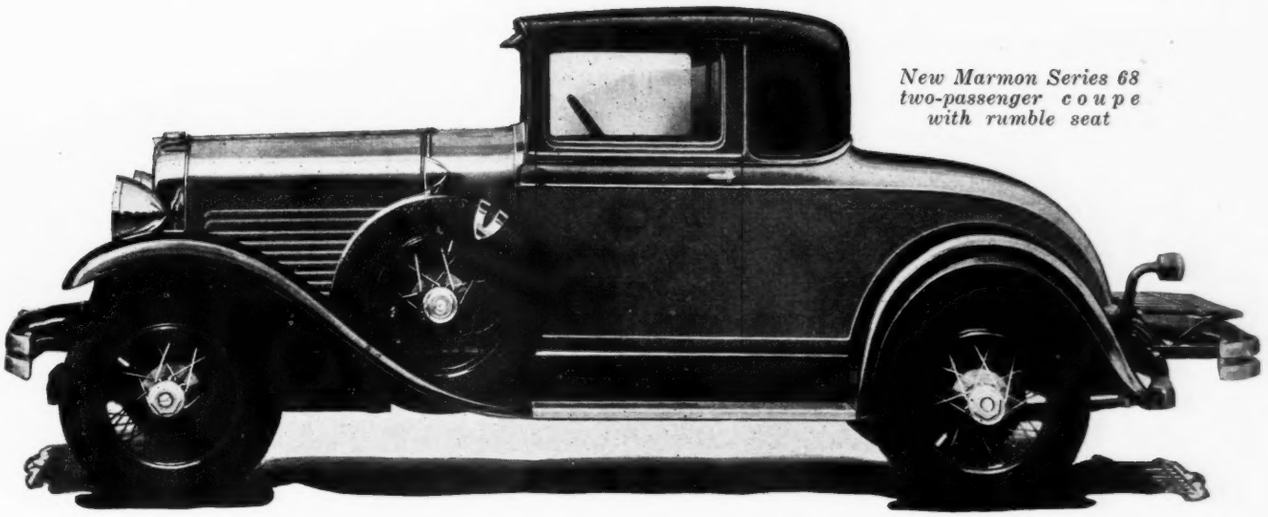
While on the subject of prices of cars and trucks, it might be well to note the practice, occasionally indulged in by some companies in the past, of alternately raising and lowering price. The advances, naturally, were made quietly and the reductions shouted from the housetops. A walloping rise in prices sometimes afforded the opportunity for three successive price cuts, each applied when sales seemed to need the stimulus.

It is doubtful whether buyers generally realize the full extent of such manipulations but they often have a suspicion of what is going on. It is gratifying to note that the industry is relying much less than in former years on the stimulation of price-cutting and is stressing quality to the exclusion of other sales appeals. Price cutting, even where partly fictitious, certainly upsets the market and benefits no one in the long run.

The consumer satisfaction involved in service might be enhanced by a little clearer and more prominent statement of just what a new car buyer can expect from the dealer. This again is something over which the factory has only partial control and it is certainly a fact that a good dealer, operating successfully for any length of time, realizes to the full the need for keeping the customer thoroughly satisfied after he has bought the car.

In the field of service parts and accessories, quite a different condition obtains. Here all is chaos, so far as prices to the consumer are concerned, and the manufacturer is virtually helpless in view of the present legal restrictions against price maintenance.

The whole subject of frank dealings by the industry has endless ramifications. The suppliers of parts, materials and factory equipment have found that their strongest sales weapon was the establishment of honest prices and the adhering to them despite pleas and demands for reductions. This spirit is pretty well established now wherever automobiles are made and sold, and if carried out a little further on a few points will leave small opening for a critic.



New Marmon Series 68 two-passenger coupe with rumble seat

Two *Marmon Eights* Undergo Chassis and Body Changes

Bore of "68" engine increased, combustion chambers redesigned and new spark plugs adopted. Larger radiator also fitted. Carburetor insulated from manifold. Prices higher.

MORE power and speed in the "68" series and refinements in both the "68" and "78" are announced by the Marmon Motor Car Co. Both are eight-cylinder lines.

Four body styles in each series are now ready and others are to be added later. Each series now consists of a five-passenger sedan, a coupe with rumble seat, a victoria coupe and a roadster with rumble seat. Prices are slightly higher than the 68 and 78 models shown late last year.

The louvres are horizontal and run nearly the full length of the hood. Radiators are larger, higher, and more massive in appearance, and new headlamps and bumpers give the car a greater symmetry of line. All bright work, including radiator shell, bumpers, headlamps, cowl bead and lamps and rear traffic signal, is chromium-plated over nickel.

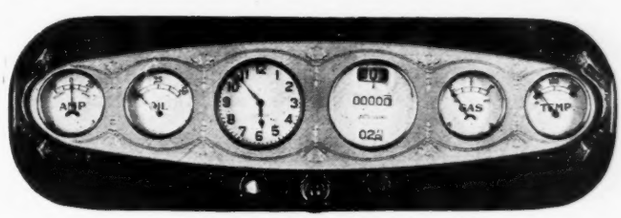
A number of other improvements have been made in both lines. Among these are the adoption of the Blossom coincidental lock and the provision of new instrument panels which are so designed and lighted as to be read easily from the tonneau. Spring suspension has been refined in both models, principally by dropping the rear shackling 2 deg. and 1 deg. on rear and front springs respectively.

The engine of the new Series 68 has a 1/16 in. larger bore, and the piston displacement has been increased 9 3/10 cu. in., to 211.2. Bore and stroke are now 2 13/16 and 4¼ in. and the engine develops 76 hp. at 3200 r.p.m.

Combustion chambers have been redesigned to give increased turbulence, but the compression ratio of 5.25 to 1 remains the same. A new large hexagon spark plug, recently placed on the market for high compression engines, is now used.

On the 68 a larger radiator is now fitted and the capacity of the cooling system has been increased to 5 gal. A volute type of water pump is mounted on the front of the cylinder block and driven by the fan shaft.

In the 78 the engine remains the same. In both series the duplex down-draft manifold is continued, but the carburetor is now insulated from the manifold to prevent vaporization in the carburetor of the more volatile constituents of the blended gasolines now on the market.



Instrument panel of new Marmon Series 78

A clutch vibration-damping insert designed by Marmon engineers and manufactured by the Rockford Drilling Machine Co. constitutes one of the principal mechanical changes in the two series. A rubber "insulator" is inserted between the driving hub and the plate, eliminating gear chatter and damping out vibrations in the drive line.

Bronze-backed babbitt-lined camshaft bearings of improved composition are used in the 68, and larger main bearings studs are fitted as an additional safety factor. In the 78 taper roller bearings have replaced ball bearings on the differential and a new type of oil retainer is incorporated in the timing gear cover.

The rear axle ratio of the roadster models of both lines has been lowered to 4.45 to 1. The ratio on all other models is continued at 4.9 to 1.

Front view of Marmon 78 five-passenger sedan

Chromium-plated piano hinges are now used on the hood, in the place of the double concealed hinge used previously. The new hinge extends beyond the rear of the hood and overlaps the cowl band, on which are mounted the cowl lights.

An "M" ornament has been placed on the headlamp tie rod beneath each lamp, and the Marmon lighting flash, which appeared on the radiator of the 76 only last year, will be found also on the 68. New bumpers are used on both lines and have a large oval section on the front on which is mounted a decorative plate with the lightning flash design. The bumpers are larger and are mounted lower to the ground.

Headlamps are Larger

Headlamps on the 68 are larger and the mounting has been changed to give an unobstructed view of the radiator with its lightning flash ornament. The Marmon monogram on the radiator is gold plated in both the new series. The front license plate is mounted on upright bumper brackets instead of on a cross bar between the headlamps.

Three groups of extra equipment are furnished to order, including wire wheels, mounting in fender wells, or fender well mounting for wood wheels or rims. Bumpers, shock absorbers and spare tires are factory equipment but are billed extra.

Except in the 78 coupe the body designs follow closely those of the former series. The two-passenger 78 coupe, a new design, has the same sweeping lines as the sedan.

The instrument panels are similar on both cars but the panel on the 78 carries an electric clock, in which respect it differs from the others. Other instruments are a 90-mile speedometer, ammeter, engine heat indicator and oil gage. All dials are mounted in a row in an etched silver panel and are lighted indirectly by two bulbs. The ignition switch, carburetor control and instrument light switch are included in the group.

A layer of celotex insulating material with a high thermal resistance is placed in the dashboard so that engine heat cannot penetrate into the body of the car. This is expected to remove much of the discomfort of hot weather driving.

Where spare tires or wire wheels are mounted forward in fender wells, the front tire carriers in both lines have been redesigned and provided with a theftproof flush type lock. Additional braces have been placed under the fenders to provide a rigid mounting.

Factory equipment includes Lovejoy shock absorbers, front double bar bumper, rear double bar bumperettes. spare rim, vacuum type windshield wiper, side curtains on open cars, and door locks and tonneau lights on closed cars. The same de luxe equipment is available on the 78 models as before.

Marmon Prices

	68	78
Five-passenger sedan	$1,465	$1,965
Coupe with rumble seat	1,465	1,965
Victoria coupe	1,520	2,065
Roadster with rumble seat	1,565	1,965

Citroen Six Due Soon

IT is now confirmed that Citroen will present his six-cylinder model at the Paris Salon, opening on Oct. 4. This is an entirely new job throughout and not merely a new engine in the old chassis. Although no official announcement has been made, it is understood that the car will be marketed, with sedan body, at about 32,000 francs, or $1,280, which will make it the cheapest car of its class at present on the European market, and one which will undersell all American makes in France.

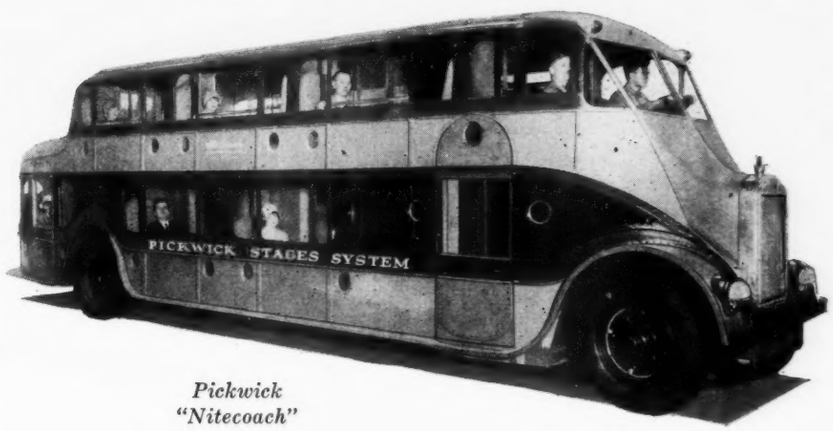
The engine is a side valve job of about 143 cu. in. piston displacement. The car has standard track, semi-elliptic springs front and rear, four-wheel brakes and a propeller shaft within a torque tube, in contrast to the present model which has an open shaft with Hotchkiss drive. The cheaper four-cylinder model, which has a piston displacement of 94 cu. in., will be continued. Citroen plans on building 100,000 cars next year, half of these being the six and half the four-cylinder model.

Showrooms with a continuous glass frontage from the ground to the seventh floor, or more than 100 feet in height, will be a novel feature of new buildings now being erected as Citroen headquarters in the Rue Marbeuf, off the Avenue des Champs Elysees, Paris.

An eight-story concrete garage, with a double spiral roadway built in it, was erected here a few years ago by Etienne Bunau-Varilla, as Bugatti showrooms. The garage did not have a direct frontage on the street, but the old buildings hiding it have been demolished, and the novel eight-story showrooms, with a frontage of 140 feet, are being joined onto it. The showrooms will resemble a theatre as seen from the stage, and will have an unbroken height from the ground to the roof, with the whole of the upper stories visible. The construction will cost $3,000,000 and will be completed early next summer.

"Nitecoach" *for* Long-Distance Runs Offers Pullman *Comforts*

Latest product of Pickwick Corp. contains 13 double berths, kitchen and lavatory. Carries crew of three.



Pickwick "Nitecoach"

WITH the completion of an all-metal compartment sleeping car with accommodations for 26 passengers, known as the Pickwick "Nitecoach," the Pickwick Corp., of Los Angeles, has made another contribution to the advance of highway transportation. The Pickwick System, with nation-wide travel service, pioneered and put into use the first observation dining motor stages and other striking models, but considers this its masterpiece and a vehicle which will completely revolutionize motor stage travel.

The entrance is an arched doorway near the front of the car, opening immediately on a compact kitchen, which is part of the regular equipment. This section opens into a high-roofed center aisle running the length of the car, on either side of which are ranged the 13 compartments of the upper and lower deck. By an ingenious arrangement, the upper and lower compartments are made to interlock, making the height of the car only a few inches more than the ordinary single deck stage. The center aisle is located halfway between the floors of upper and lower decks, so that it is but a short step down or up to either level.

Headroom of the center aisle is 7 ft. from floor to ceiling, and the aisle is 22 in. wide. Heavy sliding curtains give privacy to each compartment at night. With curtains drawn aside, each compartment is revealed as a little stateroom with deep-cushioned chairs facing each other and a wide three-paneled window extending its full length. These windows, all movable, have both shades and draw curtains. In each compartment there is a built-in thermos jug of ice water and a wash basin with running water. Two sliding drawers, measuring 14 by 17 in. are for clothing and personal effects. There is space where a suitcase may be stored, making it completely accessible at all times.

The berths are made up in a compartment by swinging up the back of each seat, which is hinged at the top, until lower ends join, thus forming a single bed 24 in. wide. This makes the upper berth. The lower portion of each seat is in two sections, which are arranged along the floor to form another comfortable bed. The length of each berth is 6 ft. 4 in. While berths are being made up by the porter, passengers can remain comfortable in extra seats at both front and rear of the car. Including the folding seat in each dressing room, the "Nitecoach" has a total seating capacity of 44, although 26 is considered a full load, especially for night travel.

The "Nitecoach" carries a crew of three—driver, steward and porter.

The new coach is different in construction from any previous type of motor stage. The car has no chassis, the frame and body being built as a unit. For additional strength they are riveted together, not bolted. The heavy frame of I-beam steel is seen on the outside of the car, extending clear around as a graceful band or belt line. The coach measures 34 ft. 4 in. long, 10 ft. 3 in. high and 8 ft. wide. The weight is about 14,000 lb., actually less than that of some cars which Pickwick is now satisfactorily operating on the highways. This light weight is due to the use of duralumin in construction of nearly every part of the body. Cross member of 4-in. seamless steel tubing placed at frequent intervals, add to the rigidity and strength of the body. Sheets of duralumin cover the whole car in a solid sheet, lined inside with Thermosote, a composition paneling which serves as insulation against heat and cold.

Engine of Pickwick Design

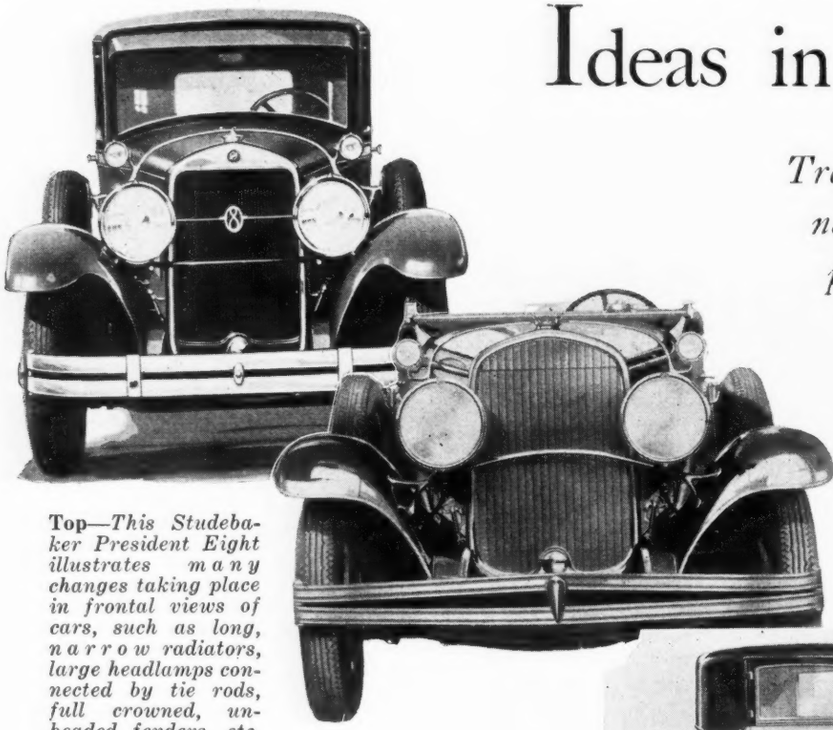
The motor in the "Nitecoach" is an exclusive Pickwick design and construction. It develops more than 110 hp. The differential, transmission and other important units are also the products of this company's plant. An interesting feature developed by Pickwick engineers is the method of removing the motor for repair or replacement. A few bolts are loosened, oil, gas and electric lines disconnected, and the complete powerplant is moved forward and out of the frame. The removable motor is to be standard on Pickwick cars in the future.

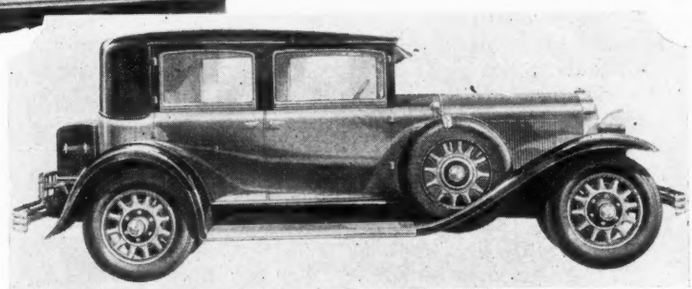
The driver in the "Nitecoach" is located in a compartment entirely separate from the passengers, immediately above the motor.

1929 *Models* Distinguishable by Ideas in *Body Design*

Trend runs toward higher and narrower radiators, chromium plating, decorative bumpers, more sweeping fenders, larger headlamps and relocation of nameplates.

By K. W. Stillman





Top—*This Studebaker President Eight illustrates many changes taking place in frontal views of cars, such as long, narrow radiators, large headlamps connected by tie rods, full crowned, unbeaded fenders, etc.* **Center**—*Chrysler 75 with unique treatment of radiator header, vertical shutters to accentuate length of radiator, curved bumpers and headlamp tie rods. Note square outline given to front of fenders.* **Bottom**—*This Buick brougham emphasizes trend toward long, sweeping fenders to give appearance of length, although no belts or moldings are used*

BODY designing engineers continue to justify their existence. Each year as the examples of their art are viewed at the National Shows one invariably arrives at the conclusion, "Here, at last, is the end. They simply can't find any worth-while improvements to make on these models."

But, again, each year as the new models begin to sprinkle through the summer months, one finds innumerable items which could and have been improved so this year, if the new models already announced are a criterion. During the next 12 months the well-informed person will be able to distinguish "this year's model" just as easily as he has in the past.

Improvements already brought to public notice consist largely of what are known in the industry as "detail refinements" and apparently have been adopted with one of two ends in view—to improve appearance or comfort. So far, in the models already announced, appearance seems to have received more attention than comfort, which is not altogether strange since modern body designs are now so comfortable that many owner-drivers spend their most comfortable and most pleasantly-environed hours behind their steering wheels.

Appearance, on the contrary, has few if any limitations. A good-looking car is a car the public likes the looks of (that is not so foolish as it sounds), but nobody knows from one year to the next what the public is going to like, consequently there is continued search after new contours, profiles, curves, colors and whatnot which may be the precursor of a "vogue" which will benefit its originator immensely.

Principal body dimensions in the new models remain unchanged generally, but by careful treatment of lines and surfaces the apparent dimensions have been changed for the better.

Bodies Look Longer and Lower

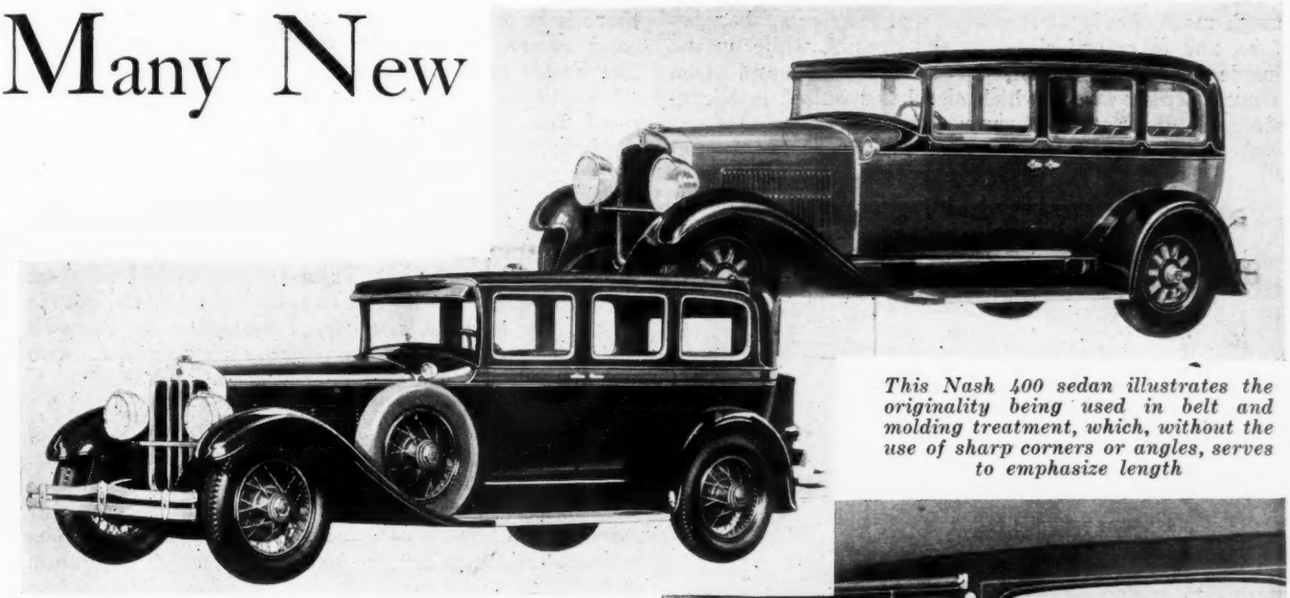
For example, there has been a general heightening of radiator and hood lines, a further rounding of tops and use of more sweeping fenders, all of which tend to make the body look longer and lower than it actually is. This same effect is intensified by the continued use of longer and shallower windows and the use of through moldings or panels which accentuate the longitudinal dimension.

A great deal of attention is being paid to the frontal appearance of the new cars with the result that this view alone will generally be sufficient to distinguish models of 1929 vintage from all others.

The tendency, noted last year, toward narrow radiators has been carried still further, and headlamp design and location and the design of fenders and bumpers have been revised to add to the effect of immense power and speed which, apparently, is the desideratum of today.

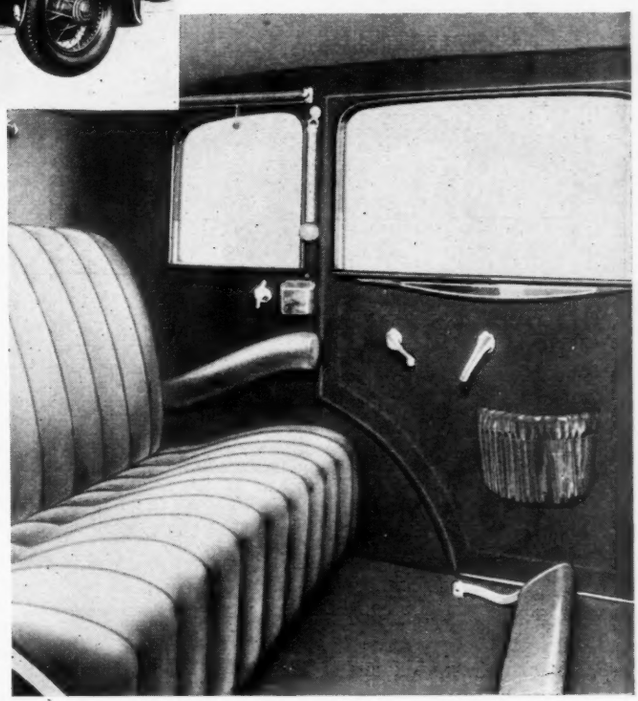
The new Chrysler models carry this mode possibly farther than any other cars yet announced. The normally long and narrow radiator is accentuated by

Many New



This Nash 400 sedan illustrates the originality being used in belt and molding treatment, which, without the use of sharp corners or angles, serves to emphasize length

Chandler employs artistic bumpers, vertical radiator bars to emphasize length, and long, sweeping fenders

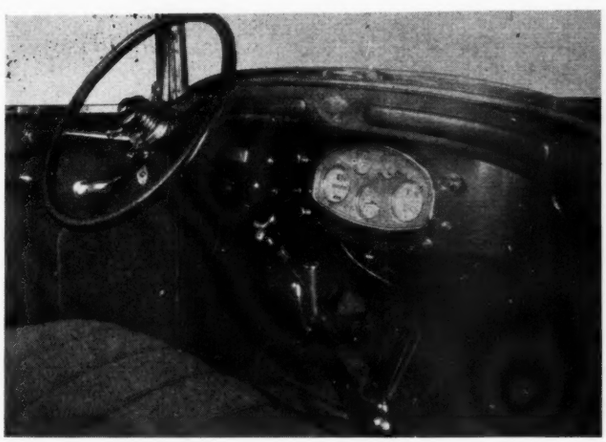


Interior view of new Chrysler 75 royal sedan

camouflaging the radiator header with dummy shutters which, being vertical, in themselves add to the apparent depth of the assembly.

Starting at the front of the cars and working back, each new model presents some interesting innovations in design. Bumpers have had their purely utilitarian job of safety extended so that now they have become a part of the car's design. In the new Chandler, Peerless and Marmon models, among others, the bumpers are no longer straight bars bespeaking humbly their practical uses, but have been designed with curves and lines which blend unobtrusively into the car.

Headlamps appear to be rather larger than formerly and in many cases are joined by a tie rod which sometimes also carries an emblem. Studebaker, Marmon, Chrysler, Nash and others are among the latest to adopt this design, while the first two, at least, use it for carrying an emblem—Studebaker in the middle of the rod



Interior view of Erskine Six

and Marmon two emblems, one at each end. Buick, among others, mounts each lamp on individual stanchions.

Before going further it might be well to state here that the promise of chromium plating has been fulfilled. "All external hardware, including radiator shell, headlamps, bumpers, cowl belts, door handles, etc., are chromium plated" is a statement which echoes through nearly every new car specification.

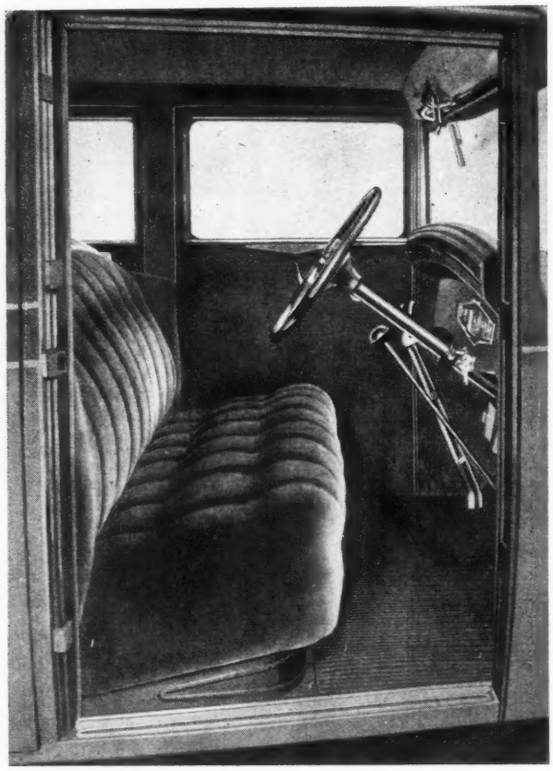
So far, the new Chrysler design of practically eliminating the radiator shell is unique; no other new models yet announced have displayed any tendency toward this nor, except Buick, toward eliminating the radiator nameplate. Buick places its name low on the radiator core.

In the new Marmon, unique hood louvre design has been adopted—it seems to be about the only one which has not yet been tried—in which the louvres are horizontal and extended nearly the full length of the hood. Another Marmon innovation already found on several other makes is the use of chromium-plated, piano type hinges along the top of the hood in place of the concealed hinges formerly used.

As mentioned before, fenders have been considerably altered in design. The most obvious change is in their longitudinal contour. They appear to hug the wheels

much more closely at the front and rear ends than before, and to extend closer to the ground, while on the inside they have been lifted from the wheels and given a much longer sweep which also has resulted in a considerable shortening of running boards.

A front view of the Chrysler fenders shows an uncommon treatment since the general appearance of the ends is square, making quite a contrast with the conventional rounded shape customarily employed. Marmon fenders have a design pressed into their ends. Chandler front fenders have the maker's emblem stamped on the tip and enameled in colors.



Nash has rearranged the driving controls to provide more space in the front compartment

The present tendency seems to be toward making the radiator cap as inconspicuous as possible with the result that practically all new cars employ low flat flush-type caps which blend into the body lines.

Cadet or polo cap or similar type visors remain popular for closed models. Molding and belt treatments show no more signs of standardization than they did three years ago, and to say much about them would necessitate describing in detail not only the various makes of cars but the different models of each make, since a diversity of design is employed.

This same comment applies, in general, to color effects, which appear to be no more striking than they have been in years past, but there is evidence that more attention has been given to color values for the achievement of particular aims. The result of this education in the use of tones and shades is that ensembles are perhaps happier in treatment than were some of the early attempts to apply the brighter colors in large splashes.

Other detail changes made in body exteriors which, while relatively unimportant in themselves, perhaps all contribute to a completely finished and satisfactory design, are found on many of the new models.

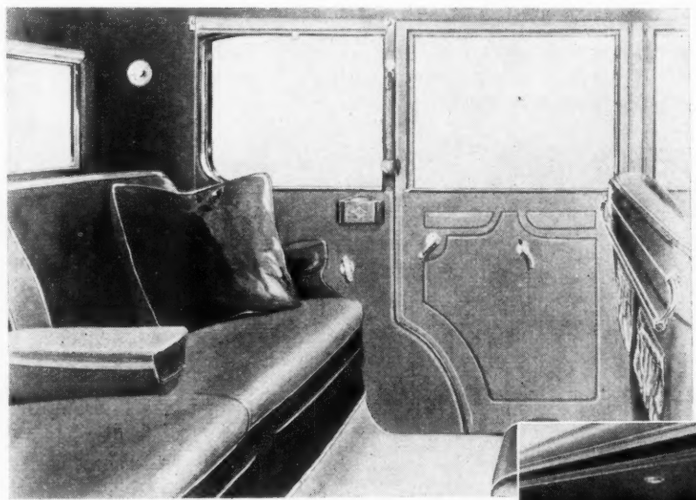
The windows of Chrysler and Buick closed cars are curved slightly at the top to contrast with the curves of the top rail. A number of makers have followed custom car practice and are offering six wheels, the two spares being carried in fender wells.

Fabricoid material with embossed designs is used for top material as well as for spare tire covers, making a pleasing change from the flat black of the past. Studebaker and Peerless models have short belts of contrasting colors. Wire wheels and trunk racks are made standard equipment of a number of models of various makers. Marmon, for one, extends the use of chromium plate to the trunk rack.

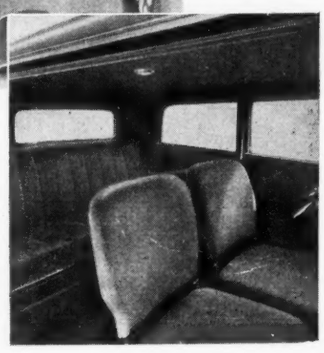
Car interiors show no extensive improvements over the practice of last year. Adjustable steering columns will be found on more cars this year apparently, while the supply of fittings with which the tonneaus of de luxe closed cars are ornamented seems endless. Franklin furnishes loose back cushions upholstered in the same material as the rest of the car.

The old upholstery standbys—mohair and broadcloth—continue their popularity and the use of so-called coincidental locks and various other theft preventive devices appears to be on the increase.

IN the recent annual report of the German Dye Trust, the chairman, Dr. Carl Bosch, stated that the production of synthetic gasoline in the works of the firm would amount to 100,000 tons this year and would be 200,000 tons next year, the increase being due to improvement in the process.



Above—*Custom body comfort and luxury are provided in this Franklin Airman Limited model*



Right—*The front compartment of this Stutz illustrates the care with which fittings and appointments are designed to combine comfort and convenience with beauty*

Just Among Ourselves

New Car Models and Sales Costs

DISTRIBUTION operations never yet have been subjected to the same sort of rigid cost analysis that has been common in the production end of the industry for a good many years. Every manufacturer, of course, has a figure for his sales costs and can tell from his books the cost of a good many specific merchandising items. But, as every cost accountant knows, there is a wide difference between lists of expenditures and cost data useful in operating control. The relation of new models to fundamental merchandising costs naturally comes to mind at this time of year. New models have been coming more and more frequently in the last few years. Ostensibly the purpose has been that of sales stimulation and even more basically the accumulation of greater net profit to the manufacturer, distributor and dealer. Certainly the multiplicity of models has tended to make production costs higher rather than lower than they would have been with fewer models.

* * *

Figures Needed on Many Expense Items

HOW often is a new model economically sound? There are those who have come blindly to the defense of the extremely frequent new model solely on the basis that the Ford policy of not changing a model basically for 15 years resulted in failure. Still, it is apparent, there is a wide range of possibilities between one model every 15 years and one model every eight months of every year. We question whether any accurate figures ever have been accumulated to estimate in dollars and cents how much the introduction of a new model costs in retarded sales, prior to its announcement, slowing up of sales effort on the part of dealers and salesmen, necessity for educating thousands of salesmen as regards the new product so that they can sell it as effectively as the old, service department costs, physicial distribution costs increased by necessity for supplying a large number of cars in a great rush after a period of comparative inactivity, and the cost of the general disarrangement of selling plans and routine in thousands of dealer establishments as well as in the factory sales force itself.

* * *

Says Waste Exceeds Profit

MANY of these factors are intangibles which could be estimated in dollars and cents only with the greatest difficulty. Yet they have to be so estimated, either specifically or subconsciously, by every manufacturer every time he announces a new model; otherwise he would simply be bringing out something new merely as a matter of habit or on the basis of sheer guesswork and chance. Plenty of people can be found to prove that anything like accurate or even useful cost estimates of this kind cannot be compiled. Still there must be some basis on which to determine "Yes" or "No" as regards the announcement of a new product; an actual listing of the merchandising cost factors alongside of the production cost factors together with some attempt to estimate the expense in each case would seem to offer some possibilities, at least, of making advance estimates closer than would be the case where only production cost estimates are set down specifically. We found one very important executive the other day very definite in his belief that the economic wastes far exceed the profit benefits in many cases at the present rate of new model announcements—and he has been marketing best sellers and frequent new model lines for some years. Maybe he isn't right; certainly we aren't in a position to judge. But we do agree that more detailed studies might profitably be developed along these lines.

* * *

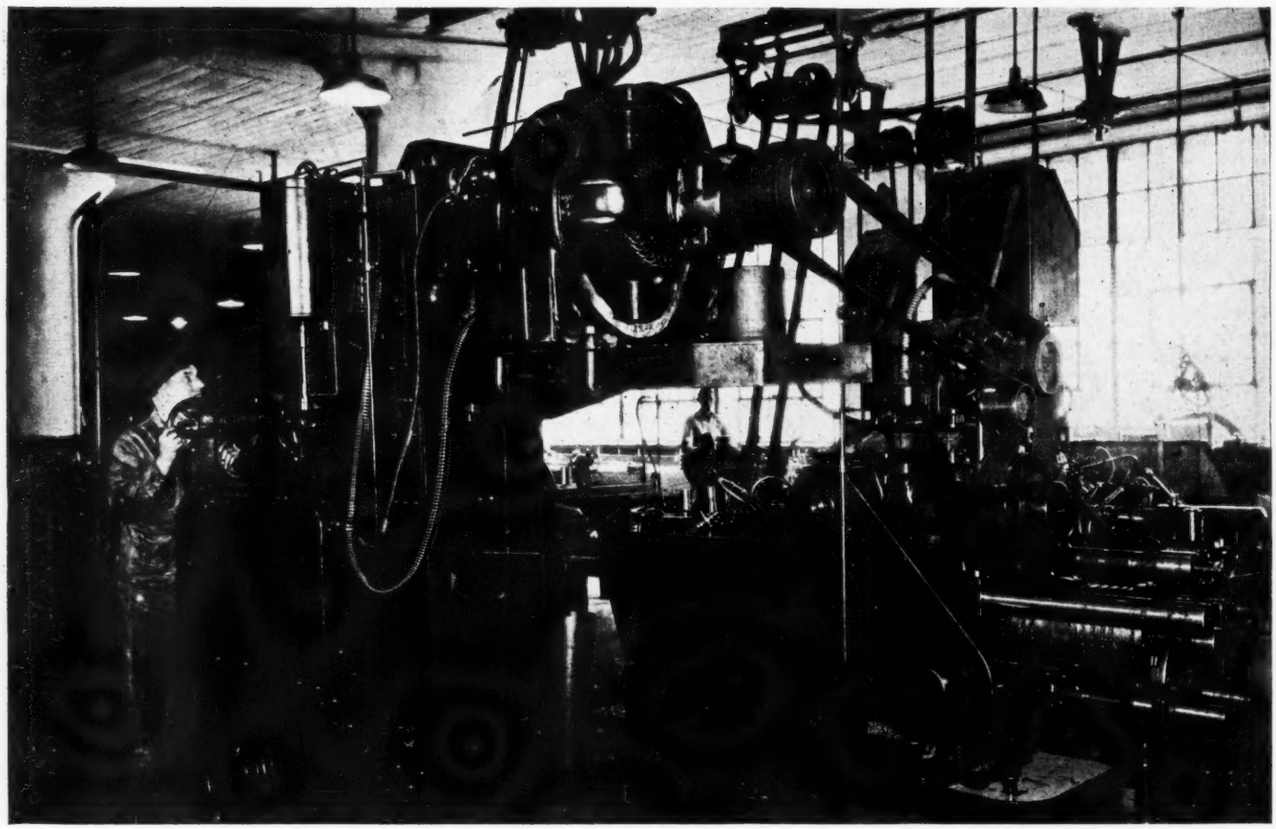
However, They're Showing Earnings

IT must be admitted, however, that despite a vast multitude of entirely new models this year, passenger car companies as a whole have been showing excellent profit statements as compared to the first half of 1927. As the year goes on, the industry continues to fulfill the predictions generally made at the outset that we were in for 12 months of satisfactory business.—N.G.S.

Service Experiences No. 4

(From a Service Man)

A car from California had drifted into our shop. It was plastered with mud and sadly in need of considerable engine work. The repairs were properly done and for good measure we washed the car free. That was where the trouble started. Not until we again smeared the car with mud would the customer pay his bill. That taught us to take nothing for granted but to do exactly what was ordered.



This motor on a removable truck and high lift platform is used in an automobile plant to determine operating characteristics of machine tools, especially with a view to determining the most efficient motor size

Machine Tool *Power Consumption* Leaves Room *for* Economy

Believe that automobile production costs could be further reduced by closer study of power requirements in plants.

By A. F. Denham

DURING the past few years the automotive industry has been able to effect so many economies in production that mention of them has become a commonplace, but even with the equipment now available the limit has by no means been reached. Among the items entering into the cost of production which, in the belief of certain manufacturing executives, can be cut materially, is the cost of power for driving machine tools. A closer study of power requirements and of methods of drive should lead to increases in the power factor and in the efficiencies of motors, and thus to worth-while economies.

The ideal motor (as regards size) for a machine tool with individual drive or for a group of tools driven through a countershaft, is one having a capacity slightly greater than the average required, the exact amount of the excess depending upon the frequency and duration of peak loads. Unless motors are kept down to such a size they will be operating at much below their rated load, lowering the efficiency and the power factor, and necessitating the use of considerable corrective machinery to obviate the necessity for paying the usual penalty for a low power factor provided for in the schedules of electric power companies.

To gain an idea of the savings which it would be possible to effect along these lines *Automotive Industries* initiated an investigation to determine what is the present practice with respect to specifying motor size and type and size of belting. While the in-

vestigation has not yet been completed, the indications already are that considerable savings are possible in respect to both belting costs and power consumption bills, the latter through an increase in the power factor.

Of course, the primary points to be established in order to analyze the present situation as regards motors for direct driving of machine tools were the methods followed in specifying motor sizes and the source of these specifications. A fairly recently completed "Electric Motor Survey" conducted by the National Machine Tool Builders' Association, covering all industries, showed motor sizes were specified as follows:

	By the Tool Mfr.	By the Purchaser	By the Dealer	Not Specified
Fractional hp.....	89%	8%	2%	1%
1-10 hp.....	37	47	15	1
10-75 hp.....	30	57	13	..

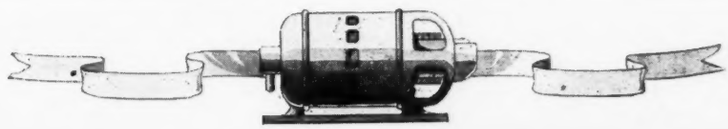
This would seem to indicate that taking all industries together, as the size of motors increases, more and more of the specifications come from the purchaser. Peculiarly enough this does not seem to apply to the automotive industry, to judge by replies to a questionnaire from a number of leading machine tool manufacturers. Thirteen out of the 14 largest manufacturers from whom replies were received state that they customarily specify all motor sizes for machine tools for the automotive industry, the tools representing practically all types and including much special machinery.

The manufacturers from whom replies were received can be separated into four groups. In the first and largest group are those who clearly state that it is their custom to specify a motor size which will take care of the maximum load capacity of the tool without reference to the type of work for which the tool is to be used.

"The machine tool manufacturer usually specifies the power required and the speed, leaving the purchaser to specify the type or make to use," states one of the largest New England manufacturers. Continuing, he says: "The machine tool manufacturer usually specifies ample power for full load, and we have found that the automotive manufacturers usually follow the recommendations."

Another writes: "In all cases we specify the size of motor that is to be attached, whether we order the motor ourselves or whether the customer does.... If anything we would lean toward overpowering the machine rather than underpowering it..... If we take the responsibility of specifying the motor and guaranteeing the machine to do a certain amount of work, we would be condemned if the machine would not deliver the capacity required."

A large drill manufacturer expresses himself this way: "We, as machine tool manufacturers, always specify the size and horsepower . . . We usually try to motorize our machines with ample power for carrying its maximum rated capacity." To this might be added a comment by still another machine tool manufacturer: "Most new machines are based on something previously made by the firm or a similar machine made by a competitor, and it is generally figured that the new machine should be able to take heavier cuts, and therefore, the horsepower (of the motor) is generally increased accordingly."



THIS article opens up a subject which is sure to be discussed with increasing interest by automotive production executives as time goes on. Under present conditions the power consumed by machine tools is a considerable factor in the total cost of automobile production. and anything looking to a decrease in the consumption rate is certain to receive the serious study of those responsible for operating procedure.

Mr. Denham has made a thorough investigation of the situation and reports his findings in two articles, of which this is the first. The second will appear in next week's issue.—Editor.

In the second class or group can be placed those manufacturers of machine tools who offer more than one motor size for a specific tool. It will be noted, however, that even these make no effort to determine actual power requirements. Quoting from a few letters:

"We believe in most cases the machine tool manufacturer specifies the size of motor..... On a standard machine he figures out the maximum horsepower the machine is designed for and specifies a motor accordingly . . . In some cases he stipulates that a smaller motor may be used if the work is not extremely heavy."

"This company recommends the minimum size as well as the maximum.... For ordinary classes of work the minimum horsepower would be satisfactory. We have never found that the purchaser specifies the motor sizes."

"On several of the models of our machines we specify two and in some instances three sizes of motor, and in most instances this option is used. In cases where the machine is apt to be shifted to an unknown (to the tool manufacturer) type of work, we always recommend the use of the largest of the three sizes."

In the third group are classed those manufacturers who determine the motor sizes from computations of power required for the specific operation for which the machine is intended, basing this, by means of an empirical formula, on the amount of metal removed. In all cases a safety factor is added, which is only reasonable, although in several cases the safety factors run up pretty high. Moreover, there seems to be no universal standard for calculating power required among the machine tool manufacturers. The various formulas used give results for cast iron, for instance, ranging from 0.2 to 1.0 hp. p. cu. in. removed per minute, while average steel will range from 0.5 to well over 2.0 hp. p. cu. in. per minute.

Of course, different types of operation will change the power required per cu. in. per minute, but hardly.

in such ratios as those which are here indicated.

"We compute the number of cubic inches to be removed," states one of the largest general tool manufacturing corporations in this group..... "This data is readily transmitted into terms of horsepower to which we add the necessary amount of power needed to drive the machine without any cut and then apply a factor of safety which is largely a matter of judgment."

"We have used a formula for the last five years," states another. "This is on the basis of one hp. p. cu. in. of metal removed in cast iron. In cutting steel we use 2 hp. p. cu. in. We are of the opinion that quite a number of machine tool manufacturers are using the same formula."

A third uses the following formula: "Knowing the amount of metal to be removed and the character of the material, the power consumed in removing this material can be ascertained from the following formula:

$$HP = \frac{\text{Area of cut x cutting speed x K}}{33000}$$

"K is a constant depending on the material. For cast iron it will run from 75,000 to 80,000; for steel from 200,000 to 280,000. To this must be added frictional loss. To the sum of these should be added a safety factor which will vary in different cases, but averages approximately 25 per cent."

Two manufacturers only among those replying are in a fourth group—those who actually determine the horsepower requirement by test. One of these states: "We specify the size of motor in all cases.... We generally determine the motor requirements by putting the machine under test and measuring the power consumption with an ammeter.... We endeavor to have a motor which will just meet the capacity of the cutter and not the machine, as the cutter is the limiting factor." In the case of this manufacturer, however, operations on his machine tools have no extremely sharp peaks and his problem is relatively simple.

The second manufacturer in this group, however, turns out a number of different classes of machine tools and writes as follows: "We endeavor to determine the load on any machine tool by calculation of the amount of metal removed first. Later we check this by a watt-meter reading of the job in process as it is run on test here before it is shipped to the customer."

Having thus established the source of motor-size specifications, and the methods used in determining them, the next step was to find out what happened to these specifications, in order to obtain the answer to the following questions:

1. Do purchasers follow machine tool manufacturers' motor specifications?
2. If they do not, do they use
   a—larger motors or
   b—smaller motors?
3. If they rely on the tool manufacturers' specifications is it because
   a—these are satisfactory, or
   b—because they do not have sufficient data of their own regarding the power consumed?

Valuable information on these points was also furnished by machine tool manufacturers. Some of the statements referring to these points, from the machine tool industry, follow:

"We have found that the automotive manufacturers follow the recommendations.... It is not likely that the automotive purchaser would have sufficient data on hand to be able to specify the power required, and he is apt to go quite a bit over or short on special machinery."

"We manufacture a certain type and size of machine which takes a 15 hp. motor. Customers quite frequently specify 10 hp. motors but never larger than 15 hp..... We have never had any complaints because of lack of power."

Manufacturers Lack Data

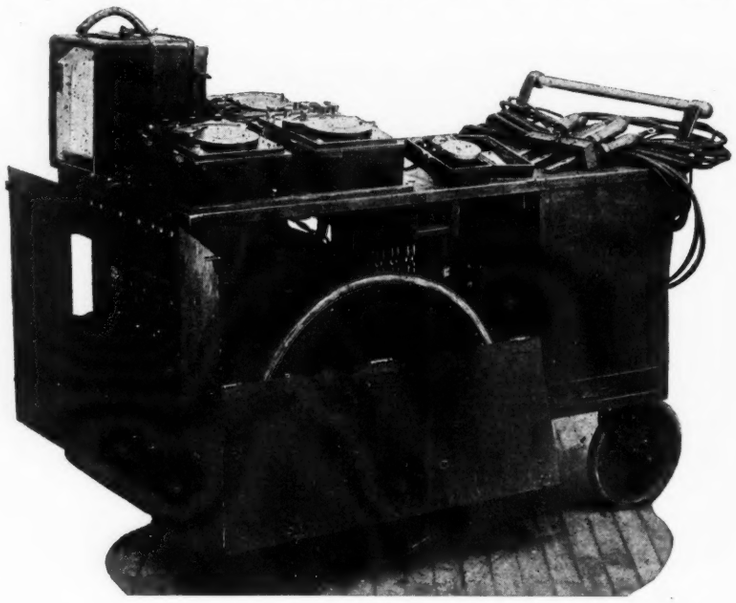
"I question whether the automotive manufacturers have sufficient data regarding proper sizes and types to specify wisely.... As a matter of fact they won't stop to figure it but will put on a motor that is heavy enough for the job and carry the peak, probably resulting in overpowering the machine (if they do not follow the tool manufacturer's specifications)."

"The machine tool manufacturer is forced to specify a larger motor size than might possibly be necessary, in order to protect himself from overloading of the motor due to insufficient knowledge of power requirements on the part of the user."

"The machine tool manufacturer bases his motor specifications upon the capacity of the machine.... When the automotive manufacturer purchases motors for machine tool application and ships them to the machine tool builder he, in practically all cases, purchases his motors against specifications furnished to him by the machine tool builder."

"The automotive manufacturer probably has only a rather vague conception as to the amount of power which a new machine tool might be expected to consume for any specified operation."

"The customer generally puts on the size recommended. Trouble is frequently caused by the customer putting on a larger motor than is recommended



This instrument truck, used by Dodge Brothers, Inc., has mounted on it all necessary equipment for determining correct motor size on direct drive tools. The instruments include a recording watt-meter, an ammeter, a voltmeter, a power factor meter, and transformers with provision for all ratios that may be required

for the machine tool, as the excess load may cause undue wear and breakage of the machine."

"In a few cases our customers specify a smaller motor than recommended, as they do not intend using the machine up to its latent capacity. Should they put a heavier load on the machine than the motor can stand, the customer will have trouble with the motor and not with the machine."

"In general, the master mechanics and equipment managers of automotive plants have a very good knowledge of the power requirements for a specific purpose, but we should say that it is only human to err slightly and provide a slight amount of excess capacity in the motor."

And finally: "Automotive purchasers have very little data regarding proper size and type of motors required to drive machine tools and as a rule rely almost entirely on the recommendations of the machine tool manufacturer. The purchaser also in most instances considers it preferable to put on a motor which will give some surplus of power to meet unusual conditions."

These letters and other sources of information would seem to establish the following points:

1. In the majority of plants purchasers follow motor size recommendations.

2. In most cases, purchasers in the automotive field do not attempt to determine actual power consumption.

3. Generally larger motors are specified by the machine tool manufacturer than are absolutely necessary.

4. The automotive manufacturer also leans toward overpowering, probably because of insufficient knowledge of actual requirements.

5. The machine tool manufacturer assumes the major responsibility for motor size.

The next question would seem to be whether or not the automotive manufacturer can be induced to cooperate in some way so as to reduce his own power costs. It is difficult for the machine tool manufacturer to know his customer's exact consumption needs, except in cases of highly specialized or expensive machine tools, which might justify putting the tool under test under actual operating conditions and checking power requirements. As one large tool manufacturer frankly states: "The automobile manufacturer's methods, material and equipment vary so much that it is very hard to set up any definite standard in determining motor capacities for different machining operations."

In reference to unnecessarily low-power factors and efficiencies, this same manufacturer states: "We believe that educational work among automotive manufacturers is tending to improve the situation and to be very valuable, and undoubtedly many savings could be made...."

Another large-scale manufacturer of production drill presses, etc., who has already been quoted as stating that he tries to motorize his tools up to maximum rated capacity, states further in his letter: "We admit that there is no economy in over-rated motors, and perhaps a customer's power factor could be kept to the minimum if he would make a careful study of the actual amount of power required for his specific work."

A third says: "All of the horsepower recommendations on our standard machines are based on average working conditions, as it would be impossible (for us) to figure this for the individual job."

Investigations among automotive manufacturers disclose that in only a few plants are analyses under way to determine possible savings. In all of those covered so far there is a distinct tendency to reduce motor sizes all along the line. In one plant, for instance, where investigations were conducted, it was found that it was possible to reduce the connected load of one group of more than 200 motors from an original figure of over 2000 rated horsepower to a

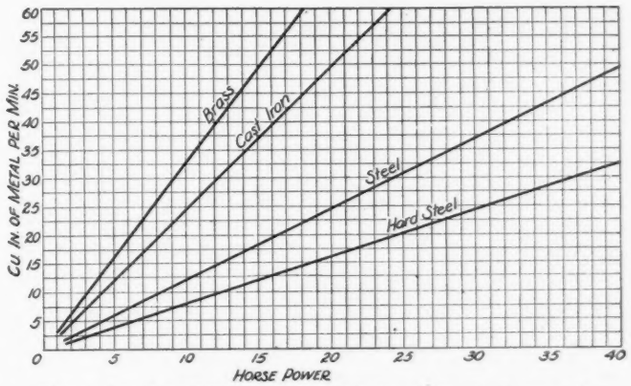


Chart developed by W. W. Nichols of D. P. Brown & Co., for determining power requirements of machine tools

rated load of slightly above 1000 hp., thereby considerably increasing the operating power factor of this group of machine tools.

In a second plant, where a large number of 30 hp. motors were used for certain group drivers, it was found that these were operating at power factors of from 52 to 54 per cent. After taking into consideration that at the time the tests were conducted the full number of machines was not in operation, and allowing for maximum load capacity, it still was easily possible to replace the motors by others of 20 hp. rating and retain an ample safety factor.

In a third instance the motor size on a series of presses was reduced as follows for each size of press, while maintaining full scale operation and increasing the power factor:

	Tool Mfr's. Recommendations	Installation (Final)
Small size.....	10 hp.	5-7½ hp.
Intermediate....	30	20
Large size.....	60	30-40

It would be hard to determine whether most efficient motor sizes are more important with large or with small motors. The large size motors, of course, are inherently more efficient and the power factor does not drop off as rapidly at partial load. A 30-hp. motor, for instance, will have a power factor averaging around 80 per cent at 50 per cent rated load, according to tests conducted by one automobile manufacturer. At the same percentage of rated load a 5-hp. motor will have a power factor of only about 50 per cent. On the other hand, a higher maximum power factor is obtainable with the large sizes at their most efficient operating load than with the small motors, but the increase in power factor is not in proportion to the increase in motor size.

Any increase in power factor of a group of large motors would have a considerable effect on the overall plant power factor, whereas it would take a much larger number of smaller motors to produce the same improvement. In the small sizes, however, much larger proportional increases in power factor are possible with the same relative closer approach of the operating load to the rated load.

The following instance may serve to illustrate this

condition. In one plant a group of short-bed lathes were purchased for turning the felloes on artillery type wheels. Tests on three of these were run immediately after installation and the following data were obtained.

	Lathe No. 1	Lathe No. 2	Lathe No. 3
Motor rating	5 hp.	5 hp.	5 hp.
Min. hp. during operating cycle	0.8	0.8	0.53
Max. hp. developed	4.69	1.7	2.0
Avr. during cycle	2.0	1.3	1.3
Approx. average power factor	70 per cent	52 per cent	57 per cent

The great variation in the maximum horsepower is due to the fact that this peak is developed only instantaneously just before the automatic stop comes into effect, at the point where the tool comes up against the flange on the felloe at the end of the operation. The minimum power, of course, represents the friction load of the machine.

Some time later, when a number of 3-hp. motors were available, it was decided to install these to replace the 5-hp. units. Since the lathes by that time had been well broken in, the frictional horsepower and resultant average horsepower were considerably lower. The following data show the improvement made at that time by the installation of the 3-hp. size:

	With 5-hp. Motor	With 3-hp. Motor
Minimum horsepower	.46	.3
Maximum horsepower	2.1	2.5
Average horsepower	1.0	1.0
Power factor	35 per cent	52 per cent

Probably a still further increase in power factor could be effected through the use of a 2-hp. motor, which should be ample to carry this load in view of the instantaneity of the power peak.

The value of this increase in the power factor, as has been pointed out, lies in the fact that it decreases the reactive load and that higher discounts are allowed if the power factor is greater. One of the factories which draws part of its current from the Edison system, and part from its own powerhouse has discounts for maintenance of high power factor of one per cent for each 5 per cent increase over 75 per cent power factor. It is understood that in many power contracts the scaling continues in the reverse order below 70 or 80 per cent power factor.

The above-mentioned plant has a load of about 4600 kw. connected to the Edison circuits, this representing one-fifth of its total load. As it draws between 1,250,000 and 1,500,000 kw.-hrs. from the Edison circuits per month, figuring the cost of electrical energy at 1½ cents per kw.-hr., the maximum discount of 5 per cent possible as a result of improvement in the power factor would amount to more than $12,000 per year. In order to obtain the full discount, such consuming devices as electric furnaces, baking ovens, welding machines, etc., which have a power factor of practically 100 per cent, are connected to the Edison lines. In addition, 2600 hp. of synchronous motors, which also have a high power factor, are connected to the Edison supply.

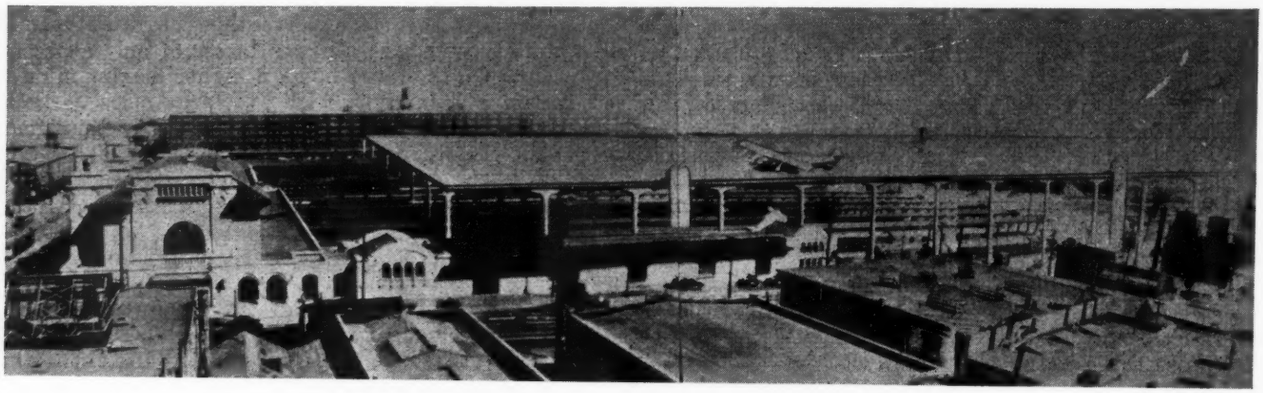
The power factor for the whole plant ranges between 78 and 80 per cent, the total connected load of 80,000 hp. including some 8000 hp. of synchronous motors.

Plan Mail Landing Field Over Railroad Yards

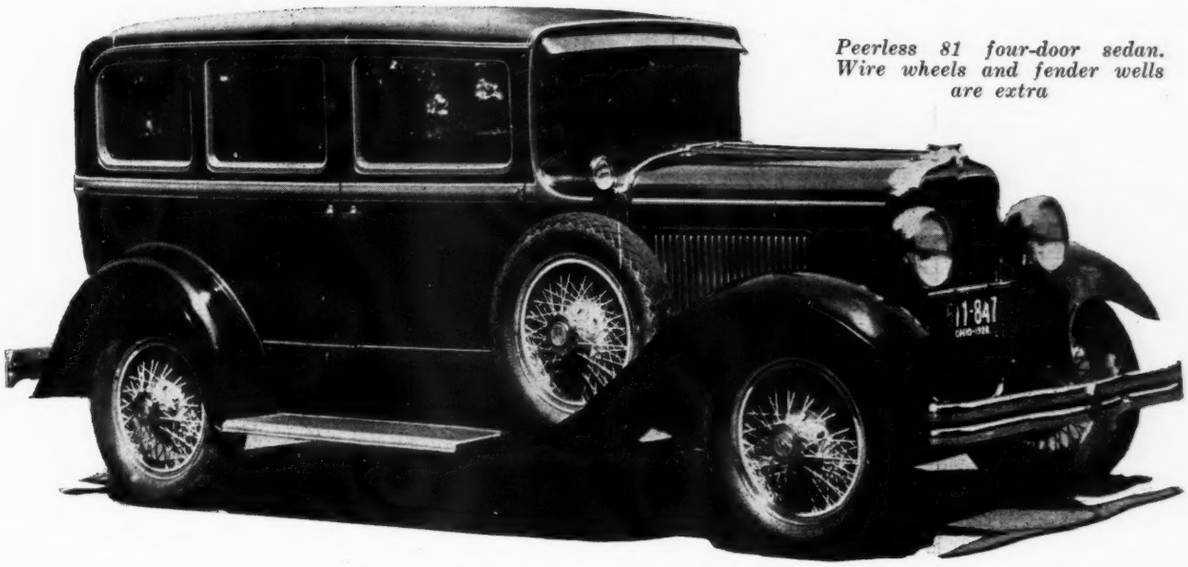
AN elevated landing field for airplanes, in the center of the downtown business district, with trap-doors in the huge platform, by which mailbags may be dropped from the planes directly into waiting motor trucks, is planned by Acting Postmaster Harry L. Todd of San Francisco. Mr. Todd has obtained the cooperation of the Southern Pacific Railroad, all the local Federal and State and municipal authorities, and has presented the plan to the Postoffice Department.

The elevated airport, 1200 ft. long, 600 ft. wide, and 50 to 60 ft. above ground, will cover the entire city yards and part of the passenger station of the Southern Pacific. The use of this mid-city airport, with the dropping of the mail through chutes into waiting motor trucks, would cut the present time of 2 hr. from plane to post office, to about 15 min., according to Mr. Todd.

Mail planes to and from San Francisco now land on and take off from the municipal airport at Oakland. Approximately 2 hr. is required to transfer the mail either from the postoffice to the outgoing planes, or from the incoming planes to the postoffice, San Francisco Bay being crossed by fast motorboat. The Todd plan would drop the mail from the planes into trucks not more than 10 city blocks from the central postoffice. It is claimed that this speeding up of the service would save hundreds of thousands of dollars annually to the business houses of San Francisco, as well as a great deal of time and labor for postal employees on both sides of the bay. Nearly all airmail which goes out of the Oakland airport originates in San Francisco.



Architect's drawing of proposed airplane landing platform



Peerless 81 four-door sedan. Wire wheels and fender wells are extra

Improvements in *Peerless* Series *81* *Accompanied* by Price Increase

Cars in new line listed from $200 to $245 higher than Series 80. Engine larger and equipment more complete. Body lines changed. Stromberg carburetor adopted.

A PRACTICALLY new motor and new bodies are features of the new Series "81" announced by the Peerless Motor Car Co., to replace the Series 80. General body lines of the Series 91, announced last fall, are fairly closely followed, although numerous minor refinements developed since that time have been incorporated. These include a new form of radiator shell, a flush type filler cap, large, round wheel hubs, chrome-plated, and chrome plating for all exterior hardware.

Prices of the Series 81 are from $200 to $245 higher than those of the preceding Series 80, but this increase is partly offset by additional equipment, including bumpers rear and front, Lovejoy shock absorbers all around, an automatic windshield wiper, tire lock, etc. De luxe equipment, including six wire wheels with the spares mounted in fender wells and trunk rack substituted for the rear tire carrier, lists at $180 additional. The same equipment with disk instead of wire wheels is listed at $135 extra.

Following are prices for the new line:

Body Models	New Price	Increase
Five-passenger Touring	$1,540	$245
Seven-passenger Touring	$1,595	New
Two-Four-passenger Coupe	$1,595	$200
Five-passenger Victoria	$1,595	$200
Five-passenger 4-door Sedan	$1,595	$200

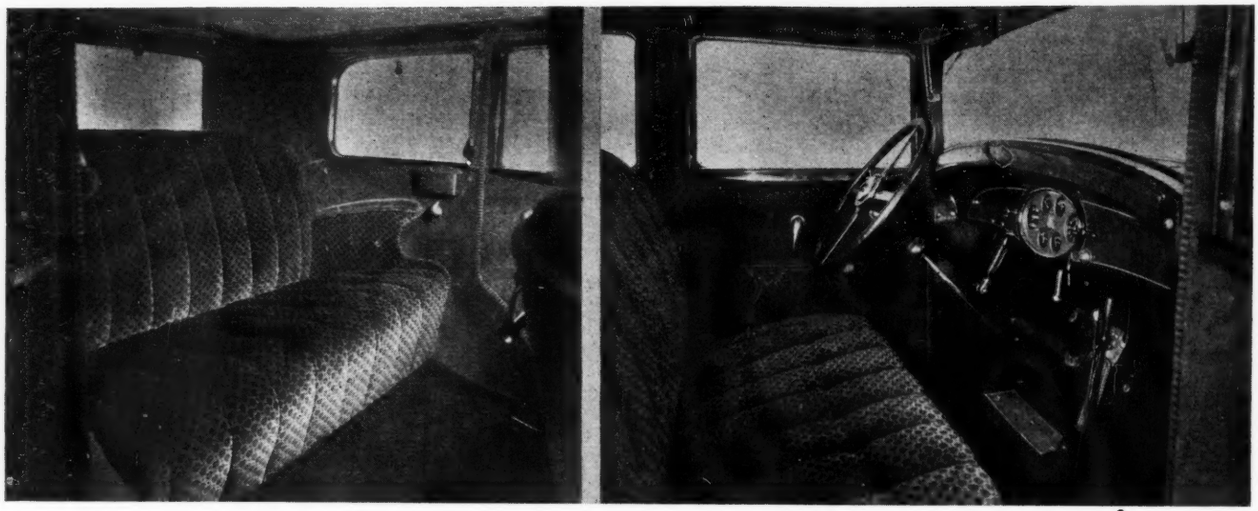
The chief engine change is the increased power available through an increase of ⅛ in. in bore, this engine now having a bore and stroke of 3⅜ by 4⅝ in. with a piston displacement of 248 cu. in. Crankshaft dimensions remain unchanged, but the Lanchester damper has been moved back of the fan pulley, so as not to interfere with the fan belt. The damper is also larger than formerly. Longer ramps are used on the cams to insure more quiet valve action. Pistons have been changed over to the Nelson Bohnalite three ring type, the lower ring being of the oil control, Perfect Circle double oil seal type. A new form of combustion chamber with greater turbulence has been adopted, and the compression ratio has been increased to 5.06 to 1.

Built into the cylinder head is the water circulation control thermostat. Other changes in the cooling system include the removal of the water pump from the front of the cylinder block, to in back of the generator. This has been done to make possible the raising of the fan to a more efficient position with reference to the increased height of the radiator. The fan itself is of the self-oiling type, incorporating a gear pump within the hub.

Stromberg Carburetor

A Stromberg carburetor has been adopted, this unit containing a plunger-type accelerating well. It has a 1¼ in. vertical outlet. Fuel feed is now by an AC fuel pump which is driven off the camshaft. The latest type of AC air cleaner, having an oil-soaked steel wool strainer, is also found on the new 81. Manifolding is finished in vitreous enamel for better appearance.

A number of improvements are also found in the oiling system. The oil pump which was formerly outside the crankcase, is now located in the sump. A Purolator is mounted on the dash. Four-point engine suspension, rubber insulated, is now used. The rubber of the rear mounting is in the form of two plates, one at either side of the frame channel, the inner one being L-shaped



Interior of the new 81 models

to fit inside of the bottom flange. At the front two horizontal plates are used above and below diagonal braces from the front cross-member to the side rails, these being used for engine mounting. To assure the same degree of "insulation" as is provided at the rear, these plates are made with flanged extensions to form a rubber bushing in the bolt holes.

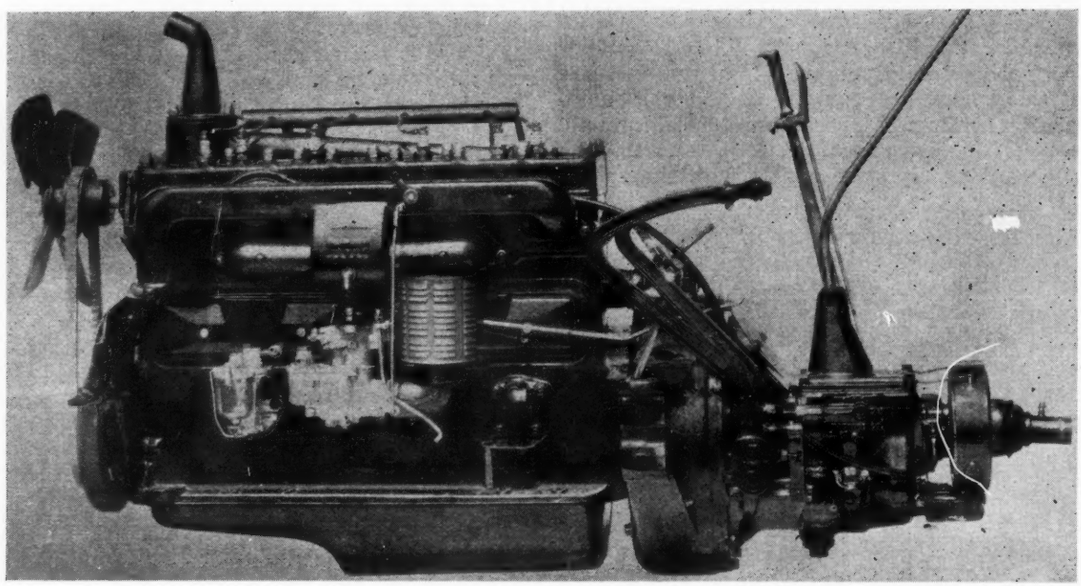
With the full rubber mounting, two tubular frame cross members have been added. One of these is immediately below the rear of the engine, while the second is located just back of the transmission case. The diagonal braces at the front already referred to tend to prevent weaving. The frame is further stiffened by a wide-plate-type of cross member at the rear, forming a cover over the gasoline tank. Radiator braces have also been added.

Clutch and transmission continue unchanged, except for a lengthening of the transmission brake hand lever. In the propeller shaft there is a reversion to Spicer grease-type joints. The rear axle ratio is now 4.22 to 1 as against 4.44 to 1 formerly, but this decrease is partially offset by a decrease in tire diameter from 31 by 6.00 to the new 5.50 by 19 size.

These tires are mounted on wood wheels of the new elliptical spoke type. There are 10 spokes to the wheel, and the new wheels, partly on account of the large hub caps, give the impression of greatly increased sturdiness. Demountable wire and disk wheels are offered at extra cost. Fender wells are included with such equipment, as is a trunk rack at the rear of the car.

Lockheed internal hydraulic brakes are now used on the 81. These are of the two-shoe type, the shoes being made of an aluminum alloy. Eccentric pivot pin adjustment for concentricity is provided. The master cylinder is of the submerged type. All drums are 12 in. in diameter and the brake lining has a width of 1¾ in. Molded composition lining has been adopted to eliminate squeaks, etc.

A cam-and-lever variable-ratio steering gear has been adopted. A new steering wheel is also used, with a hard rubber rim over a steel ring and an aluminum spider. Minor changes in the frame include the provision of integral bumper brackets and of a cast flange at the bottom of the front spring horns to act as a stop for the shackles to keep them from turning under, under exceptionally heavy deflections.



The engine on the 81 series has a larger bore and carries considerable new equipment

Body lines are best shown by the accompanying photographs. It will be noted that a very wide belt molding is used, splitting into two narrow bands around the rear. The full-crowned fenders are of one-piece construction and beaded along the edge. Their longer sweep provides a shorter running board. A cheat line molding also appears along the bottom of the body side panels. Top side panels are formed by extending the top covering, rather than by the use of metal stampings.

The instrument board, which is similar to that of the 91, carries a clock, engine thermometer and gasoline gage in addition to the usual instruments. Adjustment is provided both for the pedals and the steering column. The accelerator pedal is of the treadle type. An Electrolock on the dash is part of the standard equipment. A hair pad is mounted on the inside of the dash to reduce noise transmission.

Windshields are of the swinging, crank-controlled type. Cowl lamps and bands are standard. All exterior hardware is finished by chrome-plating. Headlamps are of the Tiltray type, using double-filament bulbs. Four Lovejoy hydraulic shock absorbers are furnished at no extra cost. Standard equipment also includes a vanity case, toggle grips, arm rests, curtains on rear and rear quarter windows, and door pockets on all doors of closed cars.

The weight of the standard sedan, ready for road, is 3395 lb. The wheelbase is 116 in. Four body models are offered at present, a sedan, a coupe, a victoria and a phaeton.

Mercedes-Benz Wins German Grand Prize Race

THE Grand Prize of Germany race, which was held on the Nurburg Ring track in the Taunus Mountains on July 15, was won by Rudolf Caracciola on a Mercedes-Benz at an average speed of 64.55 m.p.h. The race comprised 18 rounds of the track, which includes numerous grades and rather sharp turns. Each round is 17.6 miles, making the total distance of the race 316.8 miles.

The competition was an international one, and German, Austrian, French, Italian and English cars started. Cars were divided into three classes according to piston displacement, viz.: over 183 cu. in., 91½ to 183 cu. in., and 45¾ to 91½ cu. in. Altogether there were 45 entries in the three classes, but of the eight entries in the heaviest class six were Mercedes-Benz, while of the 16 entries in the second class 10 were Bugattis. This French maker also had seven cars in the third class.

The French industry was further represented by Bignan, Amilcar, B.N.C., Talbot, d'Yrsan and Lombard cars, the British industry had a Bentley and a Marendaz in the race, and the Italian industry was represented by O. M., Chiribiri, Lancia and Itala.

Many Eliminated Early

Caracciola set the pace in the first round which he covered at a speed of over 65 m.p.h. Many cars were eliminated early by maintaining too high a speed on curves and down grades. There were two fatal accidents. Junek of Prague, one of the Bugatti drivers, crashed into a rack wall at a turn, shortly after having overtaken another competitor, and was killed instantly, while von Halle of Frankfort, driving an Amilcar, turned over and died from the effects several days later.

Reserve drivers were permitted under the rules, and when Caracciola drove into the pits at the end of his fourteenth round with his rear tires in tatters, he was replaced by Christian Werner, a pioneer race driver of the Mercedes firm who had started the race in another Mercedes entry but had been replaced by one of the reserve drivers a short time previously. Werner drove Caracciola's car during the next four rounds and was first to complete the race. The severity of the contest is indicated by the fact that when the leader started on his next-to-the-last round more than two-thirds of the starters had been eliminated.

The winner in the second class was Count Brilli-Peri on a Bugatti, whose average speed was 62.3 m.p.h., and winner in the third class was H. Simons on a Bugatti. The Mercedes cars, which captured four out of the five first places in the general classing, were by far the most powerful and heaviest in the race, having a displacement of 471 cu. in. and weighing over 3700 lb. It was therefore no easy task to drive throughout the whole race without change, but this was done by Merz, who made second best time. The Bugatti cars in the second class had a displacement of only 137 cu. in.

Christian Werner (left) and Rudolf Caracciola, Mercedes-Benz drivers who won Grand Prize of Germany race

and those in the third class of 90.6 cu. in. To a certain extent the race was a match between Mercedes and Bugatti, and while Mercedes won in the general classing, Bugatti may well be satisfied with the performance of his crew as he won in two out of three classes and the best speed made by one of his cars was not much below that of the winner in spite of the enormous difference in displacement.

The English Marendaz car was eliminated by mechanical trouble early in the race, while the Bentley finished eighth in the general classing. The Bentley, a four-cylinder of 268 cu. in. displacement, and the Steyr of 300 cu. in. displacement, were the only cars competing in class I besides the six Mercedes-Benz.

About 80,000 spectators witnessed the race, and the national automobile clubs of most European countries were represented by officials.

New Small Bus Designed *by* G.M.C. *to* Take Cadillac Engine

Powerplant same as used in passenger car except for mounting and accessories. Spring mounting is unconventional. Generator placed on top of intake manifold.

ANNOUNCEMENT is made by the Yellow Truck division of the General Motors Truck Corp. of the introduction of a new small bus powered with a Cadillac V-8 engine. This model, brief mention of which was made in last week's issue, will be placed in production around the end of August and will be available as a 17-passenger parlor car or a 21 to 23-passenger city service coach. It will thus be the smallest bus unit in the G.M.C. line and will also be the first bus powered with a V-type eight-cylinder engine put into quantity production in this country.

Aside from the engine, the chassis, which is completely new in design and developed especially for this bus, incorporates a number of interesting features, including a new type of hydraulic brake control, unique spring mountings and an unusually rigid frame.

As far as internal design is concerned the Cadillac engine remains unchanged with its 3 5/16 in. bore and 4 15/16 in. stroke, giving it a piston displacement of 341 cu. in. Engine mounting and accessories, however, have been adapted to bus service. Included in this is the 300-watt bus type generator mounted on top of the intake manifold above the "V" of the engine. To the generator is bolted a bracket which carries the ammeter shaft extension to the front of the V where the bracket is again braced by a plate extending upward from the timing chain housing. The generator is driven by a separate V-belt from the crankshaft, the latter being fitted with two pulleys for that purpose. All engine wiring is also made up in a single unit, steel clad, including leads to the starter motor and generator as well as distributor.

A new type of bell housing of the standard S.A.E. type has been adopted in connection with the use of a bus type multiple disk clutch. Engine support is of the three-point type, the front support being a trunnion mounting while the rear are rubber cushioned in the same manner as the 1928 Buick models.

Mounted in unit with the engine is a four-speed transmission of G.M.C. design and manufacture. It is equipped with ball bearings on both countershaft and spline shaft with a ball type pilot bearing also. Gear ratios are 4.77:1 in low, 2.8:1 in second, 1.77:1 in third and 4.99:1 in reverse. Tubular steel propeller shafts are used, fitted with four Spicer grease type universal joints. The center section of the propeller shaft is very short, the universals being mounted directly on either side of the center shaft bearing, which is of the double taper roller bearing type. These are inclosed in a housing which is filled with light engine oil for lubrication. Adjustment of these bearings is by means of shims.

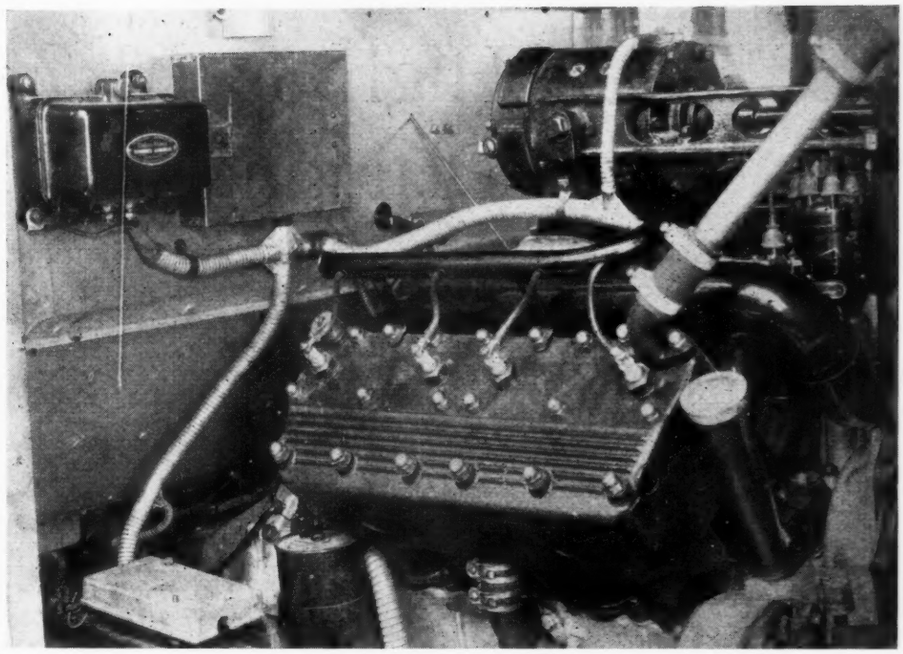
The rear axle is of the underslung worm and worm wheel type and of a semi-floating construction. It is of G.M.C. design and Timken manufacture. Axle housing is of cast steel and Timken bearings are used

Front view of the new Yellow Coach type W parlor car, powered with Cadillac engine. It has a seating capacity of 17

throughout. Sleeve adjustment is provided on the worm wheel and worm shaft and shim adjustments for axle shafts. Standard reduction is 6 to 1 while optional gear ratios of 5 to 1, 5 2/5 to 1, and 7 to 1 are also available. Front axles are of Timken manufacture and have reverse Elliott ends with Timken taper wheel bearings. A self-adjusting ball and socket type tie-rod is used.

Service brakes operate on all four wheels, are of the hydraulic type and use the Lockheed submerged master cylinder. The brakes themselves are of G.M.C. design and are of the four-shoe type with 16⅛ in. drums, 3¼ in. wide. One set of opposite shoes is operated by a cam forward of the axle center, the other two being similarly operated by a cam back of the axle center. The levers which operate these cams are connected together with the operating cylinder between them so as to obtain equal application and pressure on all four shoes. Service brakes are supplemented by a mechanically-operated emergency brake operating on two drums on the propeller shaft, one mounted on each side of the propeller shaft center bearing, both bands being operated by a single control lever by linking the two operating levers together at the center. These drums are 8⅛ in. in diameter and use 3⅛ in. bands.

Steering gear is of the Ross cam and lever type, the camshaft mounted in ball bearings. Springs are semi-elliptic all around, the front springs being 43 in. and the rear 58 in. long, both being 3 in. wide.



View of engine showing generator mounting and unit wiring system

One-Piece Shackles

A new type of spring mounting has been adopted for the shackles of both front and rear springs, both of which are shackled at the front end. These shackles are of the one-piece type adjustable for wear and are mounted, in the case of the front spring on an extension of a frame cross-member, thus eliminating the usual spring bracket. At the rear of the front spring the bracket surrounds an extension of the tubular cross-member at this point as well as being riveted to the frame side channel.

Frames are especially rigid with seven cross-members, three of which are of the tubular and four of the channel type. Side members have maximum flange width of 3 in., maximum depth of 8 in. and are of ¼ in. stock. Tubular members which are located at the front end, opposite the rear shackles of the front springs, and at the rear end, are butt-welded to brackets riveted to the frame and are reinforced in addition by a plate welded to the bottom of the tube and extending to the lower flange to which they are riveted. Channel type cross-members are reinforced in the same manner by riveting plates to the bottom of the open channels and riveting these in turn to the lower frame side-rail flange.

Tread at the front is 69⅞ in., with 65¼ in. at the rear, the 185-in. wheelbase chassis having a turning circle of 56½ ft. diameter. Wheels are of the pressed-steel disk type with 20-in. diameter rims, dual at the rear. These carry six-ply 34 x 7.50 balloon tires. Alemite lubrication is used for the chassis. Accessories include AC oil filter, standard Cadillac carburetor, AC fuel pump and 46-gal. tank, dash gas gage, 12-volt 100 amp.-hr. battery, Delco-Remy 12-volt electrical units with automatic voltage regulation for the generator and double filament six-volt headlamp bulbs. The lighting system includes also a combination tail and stop light, instrument board light, eight dome lamps, and foot-controlled dimmer switch.

A channel type front bumper is rigidly attached by means of a bracket to the frame side-rails at a point just back of the front spring shackle, and a plate extending around the rear of the body forms a rear bumper as well as acting as the carrier for the spare wheel furnished as standard equipment. Standard body equipment also includes automatic windshield wiper, rear view mirror, and a Nichols-Lintern blower type heater operated by a switch on the dash.

In the City Service coach stanchions and hand holds are provided, this model having 6 ft. 4 in. headroom and an overall width of 90 in. The parlor car has a headroom of 5 ft. 8 in. and 84 in. overall width and, as usual, is furnished with draw curtains. Shipping weight complete is 9490 lb. for the parlor car and 9350 for the city service type. The latter is obtainable in either 21 or 23-passenger seating capacity, the latter being obtained by placing longitudinal seats over the wheel housings. The especially roomy bodies for this length of wheelbase are largely due to the short hood obtainable by use of the V-type engine.

THE contract for the construction of a special automobile road in Spain, the Autovia Madrid-Irun, has been awarded to a New York contracting firm, the Fox Brothers Corp. The cost of the road is estimated at $40,000,000 and will be partly defrayed by Government subsidies. This road will make it easy for motorists to drive from Madrid to Paris by way of Biarritz and San Sebastian.

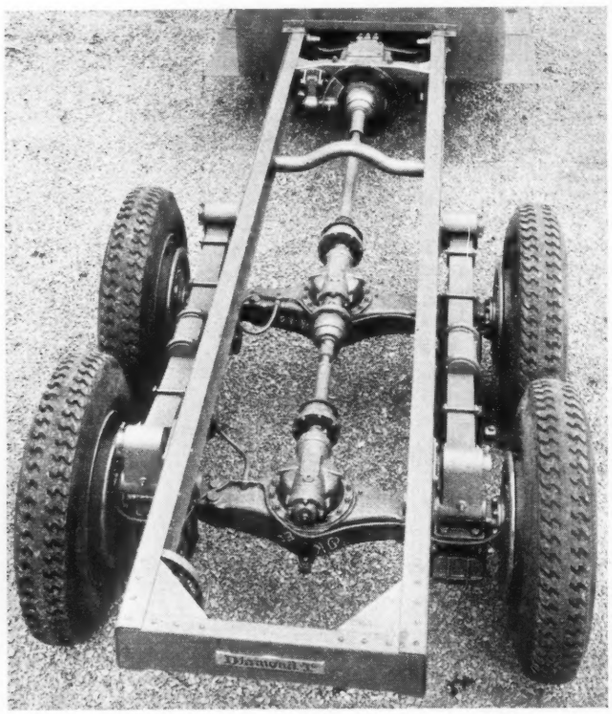
Six-Wheel High-Speed *Truck* Added to Diamond T Line

Rubber blocks in rear axle linkage absorb torque between two driving axles and allow trailing action by front pair of driving wheels in rounding curves. Hydraulic brakes.

By M. Warren Baker

RUBBER blocks as a means of absorbing torque differences between the two driving axles, and to allow a trailing action by the front pair of driving wheels in rounding turns, have been incorporated in the rear axle linkage of the new Diamond T 4-ton, high-speed, six-wheel truck now ready for introduction by the Diamond T Motor Car Co. of Chicago.

The new product is to be placed on the market in



Rear view of chassis, showing details of drive

five wheelbases, ranging from 176¼ in. to 215⅜ in., at a base price of $5,325. Forty-two m.p.h. is the rated governed speed.

The two Timken heavy-duty rear axles are connected together by two rocker beams which are anchored to the axles by heavy fin plates embedded in steel-housed blocks of live rubber, as shown in the illustrations. The propelling effort is transmitted through the rocking beams to the springs, to which they are secured by heavy spring boxes of special design; and thence through the semi-elliptic rear springs built up of 16 leaves each of chrome-vanadium steel. The beams are made of cast steel and the bearing pins are drop forged, the latter having a diameter of 2½ and a length of 4 in.

The semi-flexible type of rear axle connection has been proved out in tests on the first production model which has been operating between Chicago and Akron, Ohio, with loads of 4 and 5 tons at the maximum governed speed. It is stated that, at the end of the first 20,000 miles, the original 36 x 8 in. pneumatic tire equipment on the rear wheels was still in good condition. The treads, even of the forward wheels, showed little wear and gave every indication of attaining 30,000 miles of normal life.

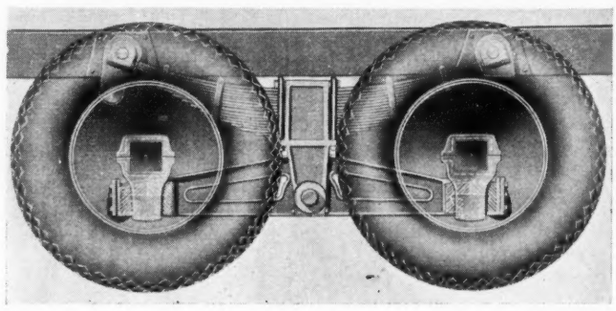
Both rear axles are full-floating, and have a gear ratio of 6 to 1. Two heavy Spicer universal joints are mounted between the two differentials with two more between the forward axle and the transmission, equipped with slip joints to allow for spring action. Pick fabric universals are used between the transmission and the engine.

Seven-Speed Transmission

The transmission, which has a three-point cradle mounting, is the Brown-Lipe seven-speed type. It incorporates an overdrive of .78 to 1 as well as a low reduction of 9.5 to 1. A special control lever is mounted beside the usual shift lever to allow easy changes from the low to the high speed range. Gear ratios are: Low range, first, 9.5 to 1; second, 4.53 to 1; third, 2.22 to 1, and fourth, direct; high range, first, 3.38 to 1; second, 1.61 to 1; third speed, direct, and fourth speed, .78 to 1; reverse, 3.97 to 1.

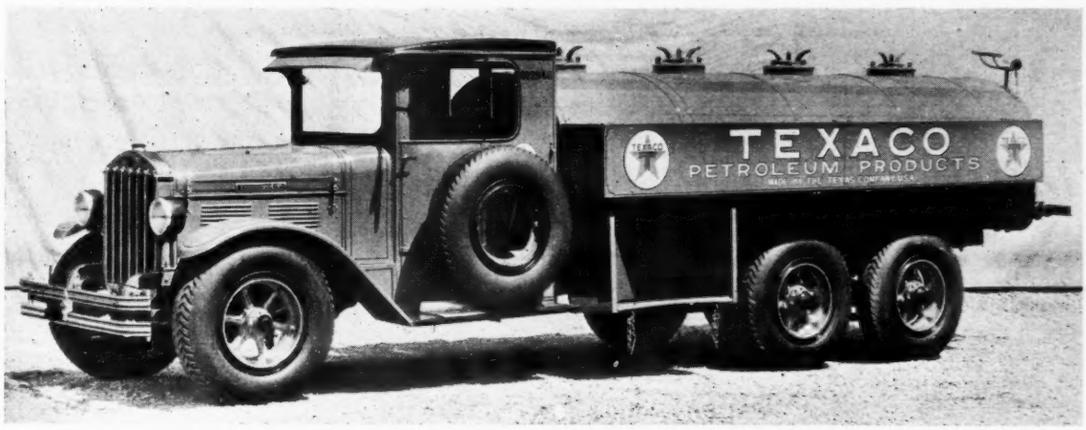
Lockheed internal hydraulic brakes operate on the four rear wheels. Brake drums are 16 in. in diameter and 2¼ in. wide. The hand brake is a 16-in. ventilated disk type, made by the American Cable Co., and is mounted behind the transmission.

The new Diamond T steel cab, which has a three-point rubber mounting on the chassis, is offered with



Side view of rear construction with phantom view of connection between axles and rocker beams

the new truck as extra equipment. This cab can be used either as a full open, half door or full vestibule cab to suit all weather conditions. Seats are deeply upholstered in black seal grain leather. Crank controls are fitted for raising and lowering the glass in the doors and an indirectly lighted "engine-turned" instrument panel is mounted on the cowl.



Diamond T 4-ton six-wheel high speed truck

The frame of the new truck is of heat-treated chrome-nickel steel and is reinforced with steel plates at highly stressed points. There are six cross-members, two of them being of the tubular type. The cross-member at the rear of the transmission is an angle plate of the same material as the frame, while the front cross-member is a cast steel cradle bolted to the sides of the frame to allow easy access to the transmission for inspection or repair.

Chassis lubrication is by means of Alemite fittings, except at the rocker beam bearings, which are lubricated by wick oilers.

A Diamond T Hercules YXC type six-cylinder engine is fitted. It has a bore and stroke of 4⅜ x 4¾ in. and develops a maximum horsepower of 93.5 at 2200 r.p.m.

Built-in Oil Filtrator

An oil filtrator is built into the engine, which is mounted at three points in the chassis on rubber blocks. Ignition is by high tension magneto, two different makes being supplied at the present time, and a special heavy-duty type Zenith 1¾ in. carburetor is used, in conjunction with a Swan manifold. Fuel feed is by gravity, the 30-gal. tank being placed under the seat.

Although the peaking power speed is 2200 r.p.m. the engine is throttle-governed at 1800 r.p.m., which allows a road speed of 42 m.p.h in the highest gear.

The clutch is a Covert multiple disk dry type, using Raybestos lining against steel plates. There are nine driving and 10 driven disks. It is mounted in unit with the engine.

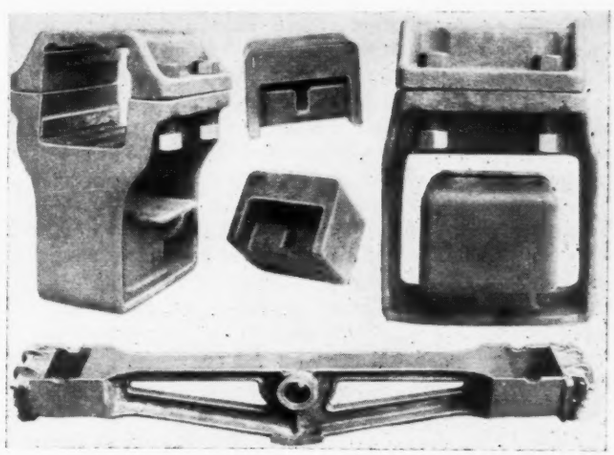
A copper fin and flat tube type of radiator of large capacity is spring-mounted and cushioned on the frame to afford protection to the core. The ability of the flat tubes to expand make the radiator almost burst-proof during extreme cold weather.

All spring leaves are of chrome-vanadium steel. The front springs are 45¼ in. long by 2½ in. wide and are built up of 13 leaves, while the rear springs are 58 in. long by 4 in. wide and are made up of 16 leaves. The front springs are shackled in front and pinned to spring hangers at the rear to minimize the effect of spring action on the steering.

The Ross cam-and-lever-type steering mechanism is used, and the steering wheel is tilted to a passenger-car-like angle for easy steering and convenience. Spark and gas control levers are mounted on top of the wheel. Dayton steel spoke wheels are standard equipment, with 36 x 8 in. pneumatic tires on all six wheels.

The approximate weight of the 195⅜ in. wheelbase chassis is 8900 lb., of which 3980 lb. are on the front wheels and 4920 lb. on the rear. The body allowance is 2000 lb.

Standard wheelbases are 176¼ in., 185 in., and 195⅜ in. and options are given on two others, viz.:



Details of rocker beams and steel-housed rubber blocks of axle linkage

205⅜ in. and 215⅜ in. The frame width is 34 in., while frame lengths are varied to suit body requirements. The track is 63 in. in front and 65½ in. at the rear.

PROPOSED American Standards relating to slotted head proportions of machine screws, cap screws and wood screws have been issued for review and criticism by the American Engineering Standards Committee, 29 West 39th Street, New York, N. Y. It was prepared by the Sectional Committee on the Standardization of Bolt, Nut and Rivet Proportions of which Professor Arthur E. Norton of Harvard University is chairman.

THE FORUM

Standardization of Materials Would Aid Aircraft *Industry*

Would go far toward solving purchasing agent's problems and give designer greater scope, says J. F. Hardecker.

Editor, AUTOMOTIVE INDUSTRIES:

The article by Peter N. Jansen in *Automotive Industries* of July 14 is a very excellent exposition of the situation and the purchasing problems to be met in the aeronautical industry today. A certain percentage of the difficulty is unavoidable, and is inevitable in a new industry with such divergent demands coupled with limited production. However, there are several ways in which the situation can be radically improved, and fortunately they can come from within the aeronautical industry itself.

The first and most obvious of these is standardization. Unfortunately standardization is often a very much misunderstood asset to an industry. Many designers feel that the industry is new and its development so rapid that they do not wish standardization to "cramp their style." On the contrary, standardization really opens up unlimited opportunities for diversity of design, if it is but understood and properly regarded.

Let us consider for an example the question of steel. There is at present no one manufacturer of aircraft who can place a single order for steel sufficiently large to warrant a mill running a special heat for him economically. Without standardization, the designer is forced to utilize whatever he has in his own stores or the jobber can supply from stock, with no assurance that he can duplicate on repeat orders. This is what he faces without standardization, which absolutely limits his design, and causes his purchasing agent constantly recurring difficulties.

Chrome-Molybdenum Steel

Fortunately, there is a decided trend toward the use of chrome-molybdenum steel in the aircraft industry. This simplifies the problem somewhat; but unless there is a universally accepted specification and agreement on physical properties, his purchasing agent again is in difficulty, because he must accept a chrome-molybdenum steel of whatever analysis is available. The analysis and composition of the steel will probably be different at different times, for the volume is never large enough to warrant a special heat. This situation requires checking and rechecking the structural analysis to ascertain whether a given shipment will satisfy all the technical requirements.

Standardization will not only provide a definite composition to which all mills will manufacture, but if carried to its logical conclusion, it will provide a wide range of standard sizes and tubing and sheet which will be carried in stock by mills and jobbers. So, in the final analysis, it will provide the designer with a far greater range of choice than he could possibly have without it; and it will eliminate the purchasing agent's problems on procurement. It is work such as this, unspectacular and painstaking, which the Army-Navy Standards Committee and the S.A.E. are doing for the industry. Bearing always the thought in mind that standardization provides a readily attainable raw material or finished part which is designed for the best general aeronautical use, and that when special requirements require special parts or materials it is not contrary to the principles of standardization to specify and use these special parts, it must be conceded that standardization is not only an asset but a necessity to the proper advancement of the industry in general and its procurement problems in particular.

Cooperation Important

Standardization represents coordination between the individual concerns in an industry—cooperation between engineering and purchasing within a given concern can accomplish results equally large. If, in requesting bids, the purchasing agent will make a practice of stating that alternative bids are invited, providing the exceptions are clearly stated, much valuable data can be procured and large sums of money saved. Information as to whether a bidder proposes to manufacture to order or supply from stock is also valuable. Any exceptions to specifications or drawings, when they are received from a low bidder, should be submitted to the engineering department for consideration. Engineering personnel in a new and diversified industry must of necessity be recruited from other industries, usually of long standing. The individual so recruited naturally carries with him into his work the practices of his basic industry.

Alternate bids, besides offering savings on the immediate purchase when the alternate material is acceptable, provide engineering data for future engineering specifications and designs. Many a part or material, specified originally as special, will be found to have an acceptable counterpart in another industry—in other

words, it can be commercial, rather than special. Continued utilization of this direct cooperative practice has saved real money for the aircraft manufacturers who follow it.

Encouraging contact between salesmen and the engineering department with a mutual discussion of basic requirements often develops new materials and applications which lead to considerable economy. While the proposed new material or part may not be a substitute for the original material or part in any sense of the word, it may be perfectly acceptable in terms of the basic requirements when properly redesigned. Only by such intimate contacts can this be brought out, and if acceptable the purchasing agents' problem is again simplified, for the new part or material is obviously commercial.

It is by means such as these, that the purchasing agent's difficulties can be immediately allayed; rather than by an optimistic hope that an era of real quantity production is just around the corner. Quantity production is inevitable; but it would take a real prophet to determine just when it will come, and the means proposed are available—now.

JOHN F. HARDECKER,
Naval Aircraft Factory,
Philadelphia, Pa.

Quality—Then Price

Editor, AUTOMOTIVE INDUSTRIES:

I have a copy of an article by Norman G. Shidle on the subject of buying. I doubt if very many manufacturers buy purely on price. In our business our purchasing agent does not negotiate on the subject of price until the article which we desire to purchase has the approval of our engineers and our committee. If various sources are submitting the articles which we consider of equal merit, generally the one with the lowest price gets the business.

Inasmuch as the industry is highly competitive, the price factor in purchasing will, of course, continue to be of utmost importance.

Very truly yours,
F. C. CHANDLER, *President,*
Chandler Cleveland Motors Corp.

Early Carburetor Work

Editor, AUTOMOTIVE INDUSTRIES:

I recently read L. S. Clarke's reminiscences and his kind mention of my early carburetor work with great pleasure. Unfortunately the date given is much too late, doubtless because he did not know of the earlier work. As early as the middle '80s I was casting about for a power not tied to battery or boiler. About 1886 at the Ohio State Fair I saw Shanck's gasoline engine, spark fired. It seemed to contain the essentials, and I at once began to "boil them down." The surface carburetor seemed unsound so I turned to sprayed fuel devices and surreptitiously borrowed my wife's perfume atomizer for the first experiments. Suction proved fully as efficient as pressure and it was simple and certain that similar suction would give similar results if the work to be done—lifting the fluid above its level—remained constant. Therefore the constant level seemed essential.

The float problem bothered. Big heavy floats with much inertia seemed certain to give a different level with every jolt in the then far from smooth roads. Small metal floats seemed difficult to produce with the means at hand and cork ones seemed certain to vary in buoyancy with the temperature and likely to "waterlog."

A general idea of the problem and its solution had been worked out by the summer of 1888, because in that year I tried to persuade an aged inventor to use gasoline instead of the steam engine he asked me to install for him. I could find no market for such a vehicle so waited until 1891 before beginning to build, and then solved the float problem temporarily by using a small chamber with an overflow to carry off any excess. This went into a lower tank with a hand pump to return it to the main one.

I do not remember when a real float was used first, but a very efficient though bulky and complicated form was built in 1896-97. The following winter—1897-98—the small float with needle point was adopted. The pointed adjustment needle was used from the very first. The rough road effect was conquered so far as we could see by making the float chamber so small that there was little room for liquid to splash and the friction against the walls mostly damped out the waves.

CHAS. E. DURYEA.

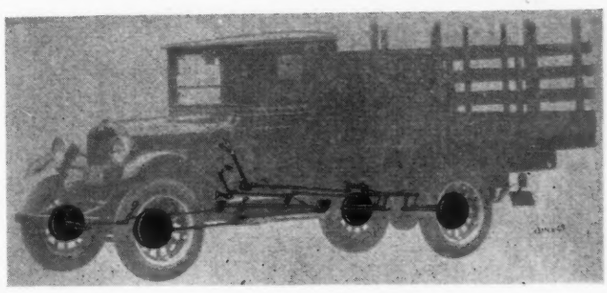
Bremen Engine Compression

Editor, AUTOMOTIVE INDUSTRIES:

In your issue of April 21, 1928, page 637, in the technical description of the flying machine "Bremen" the compression ratio of the Junkers L V engine is said to be 5.5. This information does not correspond with the facts. In order to obtain a fuel consumption as small as possible, the engine had the high compression ratio of 7, with which only an anti-knock fuel can be used. Consequently the fuel used was not gasoline, but our "B.V. Benzole." The success of this flight is for the greater part attributable to the considerable increase in the radius of action obtained by this.

BENZOL ASSOCIATION,
Bochum, Germany.

New Chevrolet Utility Truck



THIS photograph shows the brake hook-up of the new Chevrolet utility truck which was announced in *Automotive Industries* of Aug. 4. Inside diameter of the front brakes is 10½ in. with a 1½ in. width of lining. Fore and aft equalization is provided in such a manner as to divide the brake effort into approximately 40 per cent on the front and 60 per cent on the rear wheels. Total braking area is 317 sq. in. The independently operated internal expanding emergency brakes on the rear wheels are retained.

Standardization of *Skid* Platforms *Paves* Way for Economies

Material handling costs expected to be materially reduced by action which will greatly facilitate use of skids in shipping. Automobile plants will benefit.

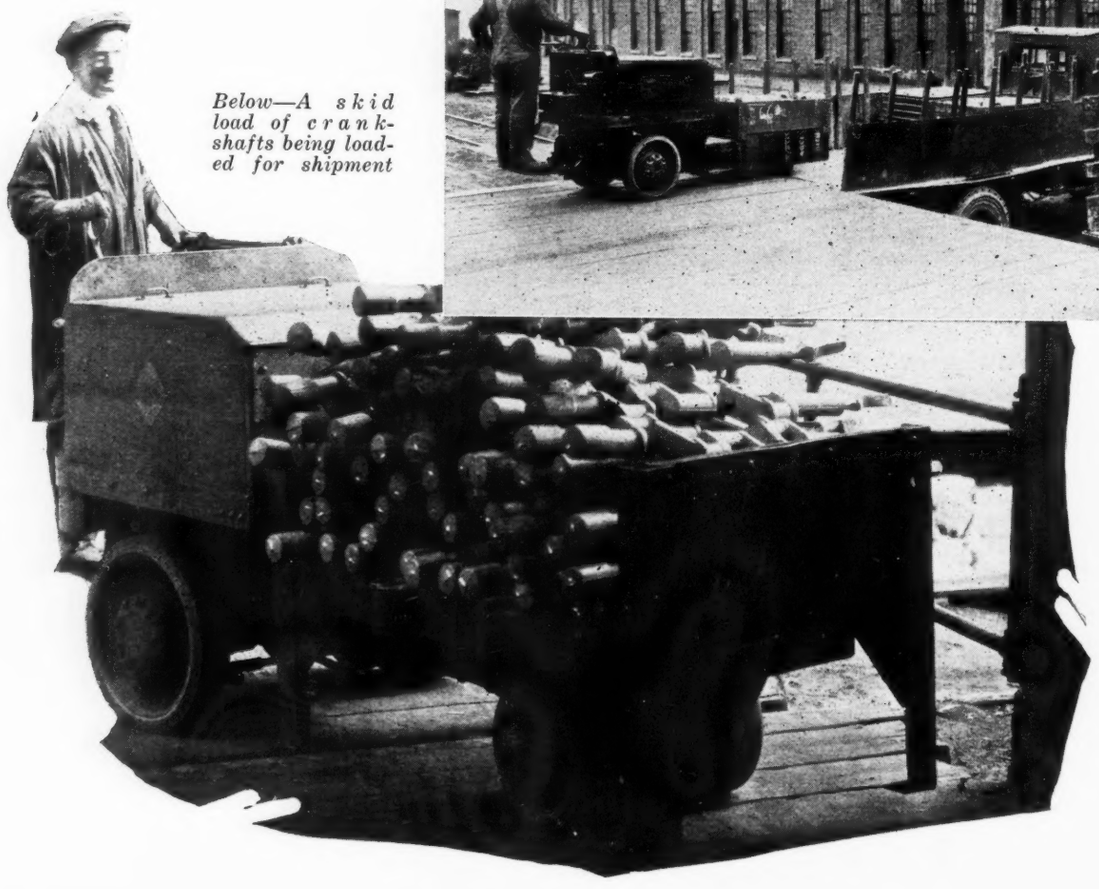
THE approval of dimensional standards for skid platforms, commented on briefly in *Automotive Industries* of July 14, has more than passing interest to the automotive industry in view of the possible enormous savings in shipping and handling charges which may result from it.

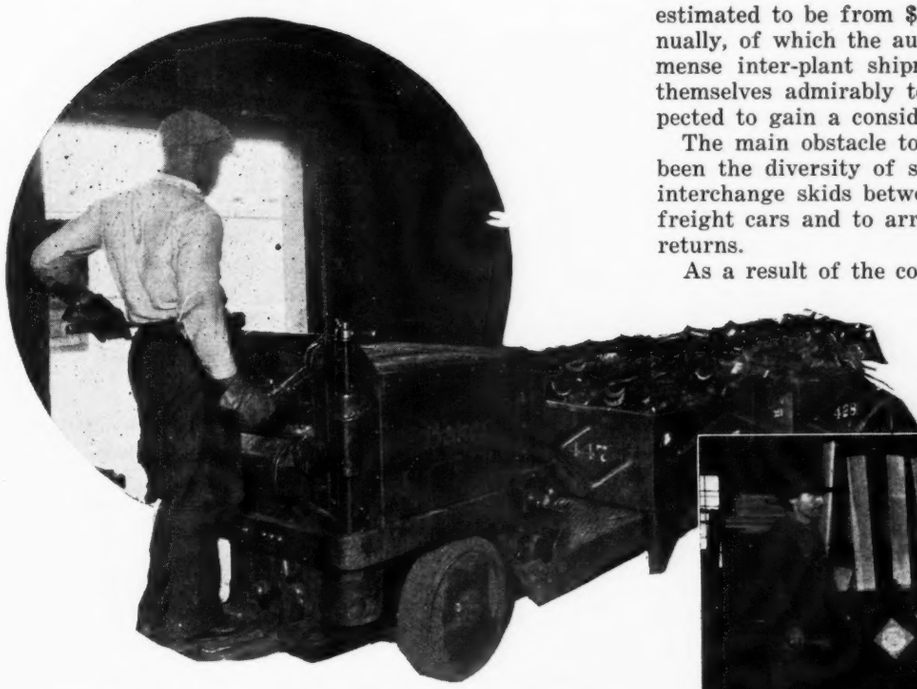
Some information regarding what the extent of these possible savings may be and other pertinent information on the subject has been obtained from the Society for Electrical Development, Inc., and is summarized here.

Skid platforms have been used for years to handle and store goods in individual plants and warehouses. A few years ago the paper industry initiated the practice of shipping goods from plant to plant on skids, thus eliminating several handlings of the material. Within the past few years this practice has spread to numerous other commodities and is now rapidly expanding in spite of the handicap presented by the great

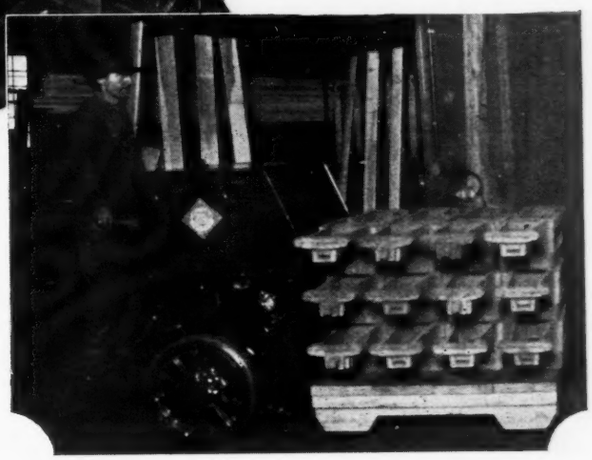
Right—Skid boxes of small castings are being unloaded from a freight car to a truck

Below—A skid load of crankshafts being loaded for shipment





Lift trucks pick up loaded skids and move them into or out of freight cars without intermediate handling



Below—Heavy pieces are more economically handled on skids and by lift trucks than by hand

diversity in dimensions of existing equipment.

The direct cost of material handling in this country is estimated by the American Society of Mechanical Engineers to be about $3,400,000,000 annually. Of this amount about $700,000,000 is estimated to be the cost of handling, loading and unloading goods, much of which might be eliminated if the goods were shipped on skids.

Although there are no accurate data for comparative costs of skid-shipped transactions, figures secured from a number of shippers show direct savings of from 25 to 90 per cent in the cost of packing, handling, loading and unloading, resulting from the use of skids for interplant shipments. Total possible savings in this way are estimated to be from $200,000,000 to $500,000,000 annually, of which the automotive industry, with its immense inter-plant shipments of materials which lend themselves admirably to skid movement, might be expected to gain a considerable share.

The main obstacle to skid shipments heretofore has been the diversity of skid sizes, making it difficult to interchange skids between plants, to economically load freight cars and to arrange for proper exchanges and returns.

As a result of the conference held in June in Washington, at which national dimensional standards for skids were tentatively approved, this situation bids fair to be remedied and thus to make the evident economies of skid shipments for the type of materials suitable to this sort of handling available to all shippers.

The proposed standards are to take effect Oct. 1, and after this date not only the skid platform makers but the manufacturers of lift trucks, as well, promise to confine their products to the standard dimensions.

Formula is Given for Efficient Brake Design

IN an article in *Der Motorwagen* of June 30, in which the use of larger braking surfaces is urged particularly for high speed buses, the author, Th. Kollinek, says that the maximum deceleration under present day conditions should be 13 ft. per sec.^{2} for motor trucks, 19.5 ft. for high-speed motor buses and 23 ft. for passenger cars, the latter being the maximum possible under favorable road surface conditions.

An equation is developed for the required "projected" area of the brake lining and the statement is made that if the brakes of most vehicles now in service are analyzed with the aid of this equation the result in most cases is very disappointing. With wheels of 36 in. outside diameter and fitted with balloon tires, the maximum brake drum diameter for which there is room is 16 in.

If the load on one rear wheel is taken at 6600 lb., the speed of the vehicle at 40 m.p.h., and the deceleration desired is 20 ft. per sec.^{2} , the necessary braking area for one wheel figures out to

$$F = 0.0000346 \times 6{,}600 \times 20 \times 38 = 172 \text{ sq. in.}$$

In the case of a two-shoe brake each shoe must have an area equal to one half of this or 86 sq. in. It is advisable to make the length of the brake shoe, measured as a chord of a circle, not to exceed 0.7 of the brake drum diameter. The brake drum diameter in this base being 16 in., the projected length of the shoe should be 11 in., and this gives a required width of brake band of $86/11 = 7.82$ in.

However, with the wheel constructions now common it will be difficult to find room for such a wide brake without increasing the tread or making the frame narrower. Therefore, if it is desired to retain the small diameter wheels and still meet the requirements of a good brake, the only possibility is to use disk wheels and form these so that a brake drum of this abnormal width can be placed within the wheel itself.

This, however, is not a complete solution of the problem. Provisions must be made for the proper cooling of the brake drum, which is now completely surrounded by other parts. This can only be accomplished by providing numerous openings in the disk wheel, between the brake drum and the wheel rim, together with corresponding air deflectors extending outwardly.

Dual Intake System *is* Among New *A.C.F.* Bus Features

Overcomes variations in engine efficiency due to temperature of weather. Two carburetors used. Change made also in exhaust manifolding. Axles have oil retainers.

A NUMBER of changes designed to improve the operating efficiency have been incorporated recently in the line of buses manufactured by the American Car & Foundry Motors Corp.

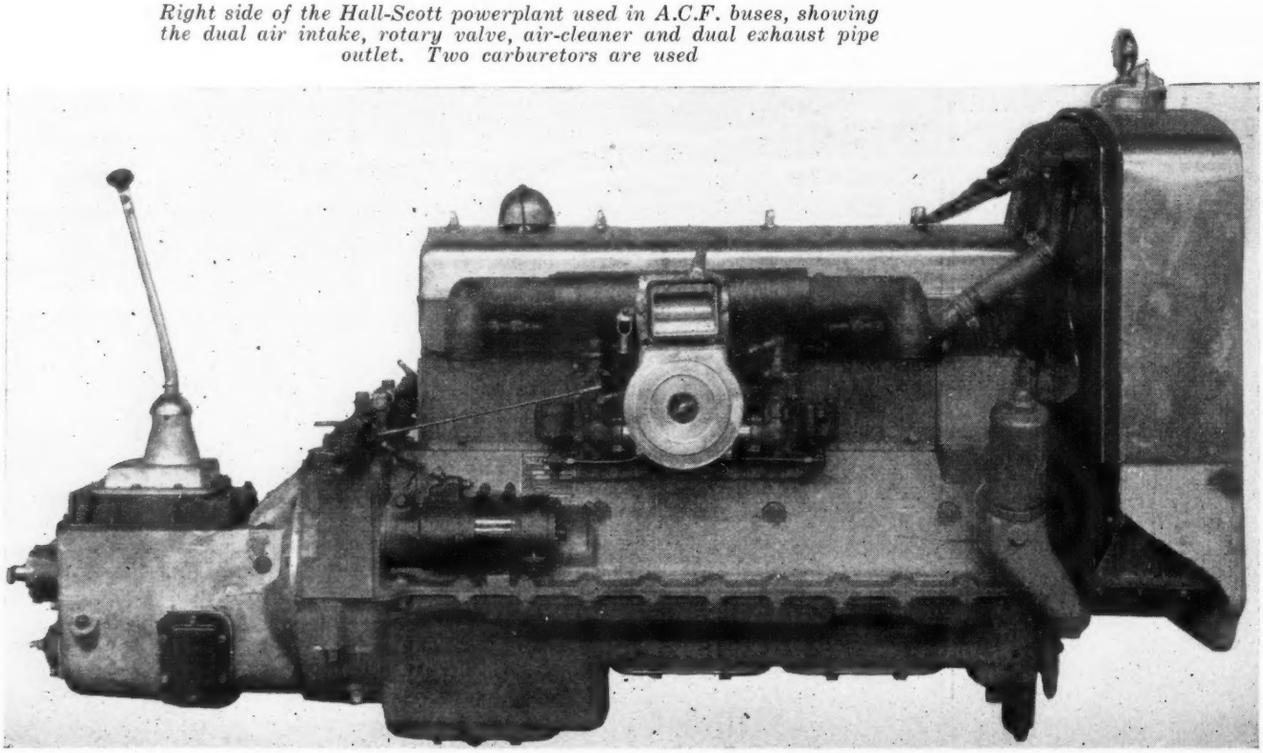
Leading in interest are the manifolding and fuel system changes under the hood. In normal bus operation, the temperature under the hood, especially on long distance runs at fairly high speed, often runs higher than desirable. With the carburetor intake located adjacent to the engine block and near the exhaust manifold, the volumetric efficiency naturally is lowered. To overcome this difficulty and still provide warm air for winter operation, a dual intake system has been incorporated on the Hall-Scott engines. In warm weather air is taken in from outside the hood by means of a scoop pressed into the hood proper, and passes down through an Airmaze air-cleaner. For use in cold weather there is an air intake on the opposite side of the rotary valve, which takes the air from around the center part of the exhaust manifold. The rotary valve permits of very fine temperature control for all intermediate conditions.

To increase the power of the engine, and also to obtain better fuel distribution, two Zenith carburetors are employed, each servicing three cylinders. There is no manifolding between the carburetors and the block, suitable porting taking care of the fuel distribution. In order to facilitate starting, a single choke valve is used, located immediately back of the air cleaner and just ahead of the branch of the air passage to the two carburetors. Throttle controls are connected to one lever in such a manner as to give equal throttle openings in both carburetors.

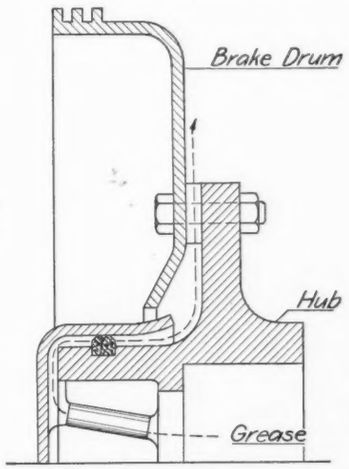
A change has been made in the exhaust manifolding to reduce the temperature under the hood. Instead of using a single outlet, two outlets are provided, one at the rear and one at the front. The collector parts of the exhaust manifold are connected at the center by a sleeve arrangement to assist in the muffling action. A further change in the hood design, which should contribute to lower temperature and better cooling of the exhaust manifolds, is the elimination of the louvres at the front of the hood, forcing all of the air drawn in by the fan to travel past the cylinder block, a screened opening being provided at the rear of the hood to permit the air to escape. The engine pan has been decreased in width and now extends only half way to the frame side channel, thus facilitating air circulation.

Another frequent trouble in bus operation is failure of the brakes to hold due to grease from the axle getting

Right side of the Hall-Scott powerplant used in A.C.F. buses, showing the dual air intake, rotary valve, air-cleaner and dual exhaust pipe outlet. Two carburetors are used



onto the drum. In order to prevent this a cup-shaped oil retainer is installed on A.C.F. axles just outside the inner wheel roller bearing, and doweled to the bearing cone. This oil retainer (or, rather, grease deflector) is cup-shaped so as to reverse the direction of flow of the lubricant around the outside of the hub center, and throw it out centrifugally back of the drum.



Sketch of rear axle grease retainer developed for A.C.F. buses

This scheme was found to work very well, except when high pressure pumping outfits were used to lubricate the axle hub. In such a case it was found that the grease would work around the deflector and get inside of the brake drum. Naturally the throwing action of the cup and passage back of the drum was derived entirely from the centrifugal action due to the revolving wheel. With the absence of this action its effectiveness was to some extent reduced. To overcome this difficulty a "piston" ring was installed between the oil deflector and the hub, riding in a groove cut in the hub. The ring is purposely made so as to require considerable pressure to fit the cup over it, thus pressing directly against the cup and bearing in the groove. The attached sketch will give a clearer idea of the operation.

Rubber Door Stops

On the street-car type of bus, as well as on all other models on which jack-knife type doors are used, rubber door stops are provided to eliminate rattles when the door is closed. On this model, also, all loose wiring has been removed from the front of the dash and placed inside of a box which uses the instrument panel as its cover on the inside of the dash. An important feature in the gas tank is the new filler arrangement, which enables filling the tank at a rate of 50 gal. per minute. It was found in fleet operation that considerable time was often lost due to buses waiting in line at a filling station. A gas gage has been placed at the rear of the bus near the gasoline tank filler, this gage being hydrostatically operated in conjunction with the dash gage.

The "Metropolitan" type of bus has been placed in production after satisfactory operation of its experimental models. In comparing the production job with the model previously described in these columns, at the time of the A.E.R.A. show in Cleveland, very little change is noted. The appearance, however, has been improved by rounding off the roof and pulling in the top part of the body side panels, these changes giving the appearance of much decreased height. It will be remembered that this bus is of the hoodless type with the engine mounted beneath the floor. In structure it is radically different from usual motor vehicle design in that there is no chassis frame as such, the various chassis units, such as rear and front axles, engine, etc., being directly attached to the various parts of the body. The Metropolitan bus is available in either mechanical or gas-electric drive.

Three-Ton Walter "Contractor Special"

A THREE-TON, 100-in. wheelbase, four-wheel drive truck, known as the Contractor Special, Model FKT, is the latest addition to the line of the Walter Motor Truck Co., Inc., Long Island City, N. Y. This unit is powered by a 4¼ x 4⅜ in. heavy-duty, six-cylinder, 80 hp. engine mounted in front of a torque of the front axle and developing 3000 lb.-in. at 800 r.p.m. Full force feed lubrication is employed and an air cleaner is fitted. Ignition is by a high-tension magneto and a Zenith carburetor fed by vacuum is used for carburetion.

Power is carried through a single disk type, 14-in. clutch to a five-speed transmission, which together with the axle reductions provides a final reduction of 85 to 1 in low and 8.5 to 1 in high. In the Walter transmission power is transmitted from the main shaft to the countershaft by a pair of spur gears for each forward speed. There is no direct drive but only one pair of gears transmits power at one time. From the countershaft, which incorporates a central differential, power is transmitted to two bevel-gear and differential assemblies, over the front and rear axles respectively, suspended from cross-members of the frame. The differentials are of the automatic locking type and comprise a worm wheel combination. Universal-joint equipped transverse propeller shafts connect the differentials with the wheels. This construction leaves only the load carrying dead axles as unsprung weight. Two reductions are provided between the transmission and the wheels, the first by bevel gears and the second by internal gears in the wheels. Since the front and rear axles are similar all parts of the axles are interchangeable between front and rear and between right and left.

Four external brakes acting on the driveshafts are used, with a braking surface of 150 sq. in. each. The brakes being mounted on the driveshafts, equalization is effected by the differentials.

The frame is of pressed steel, with a 6 x 3 x ¼ in. channel section, and is mounted over four silico-manganese 52 x 4 in. springs. Steering is through a cam-and-lever gear mounted on the left side with a patented knuckle designed to give easy steering. Budd demountable disk wheels are used with 40 x 8 in. pneumatic tires front and rear although 38 x 7 in. single front and dual rear can be obtained.

Standard equipment includes a coupe cab, an electric generator and starter, a Philco battery, electric head and tail lights, pintle hook, etc.

The weight of the chassis is 7500 lb.; body allowance, 2500 lb.; height of frame, 35 in. loaded; overall length, 187 in.; body length, 8 ft.; overall height, 100 in. loaded; tread, front and rear, 66 in.; and overall width 85 in.

ANDRÉ DUBONNET, well-known French sportsman, is building a front-wheel-drive car, equipped with a Hispano Suiza engine, to be used in next year's Targa Florio race, on the Island of Sicily. In this race there are 1000 distinct bends on a 65-mile mountain circuit and Dubonnet considers that a front-wheel-drive car will give him an important advantage.

AUTOMOTIVE NEWS SECTION INDUSTRIES
Philadelphia, Pennsylvania
August 11, 1928

High Summer Pace Rules in Majority of Factories

PHILADELPHIA, August 11—High summer production rates are the rule at the majority of the leading automobile factories. A few have curtailed schedules, but others are just getting under way on new models and will be speeding up output for some time to come. Conditions in the field are excellent, with a strong demand for both new and used cars.

Buying in the agricultural regions of the Middle West has been particularly notable, but the industrial centers have proved good markets, somewhat better, in fact, than at this time a year ago.

Ford continues to gain slowly, and is now nearing the mark of 4000 units daily. The company is in position to assemble and deliver many more cars, but difficulty in obtaining parts continues to restrict output.

Stocks of new cars were rather high early in the summer, as compared with a year ago, but the increase could be justified by the greater volume of business enjoyed by most of the companies. In June and July, however, quite heavy inroads were made into the surplus, and conditions in this respect are regarded as sound.

Chicago District Shows Sales Conditions Better

CHICAGO, Aug. 8—The Federal Reserve Bank of Chicago, reports cars sold in the Chicago district in June decreased 3.3 per cent from May, but were 22.4 per cent above June last year. Sales for the year are 11 per cent above this time last year. Cars on hand June 30 were 4.9 per cent lower than at the end of May, and 21.4 per cent higher than June a year ago. The number of used cars on hand was 7.3 per cent lower than in May and 4.1 per cent lower than June a year ago. For the first six months the average number on hand dropped 8.3 per cent. The number of used cars sold in June was 3.8 per cent lower than in May, and 7.9 per cent higher than in June a year ago. Sales for the six-month period were up 8.1 per cent.

Chevrolet Gains in South

DETROIT, Aug. 6—Chevrolet sales in the Southeastern region in 1927-1928 were 95,000 cars. In 1926-1927 the figure was 81,500, and in 1925-1926 53,417. In the fiscal year 1924-1925 there were 16,390 sold in this region.

Indian Discontinues Taxis

SPRINGFIELD, MASS., Aug. 7—Indian Motorcycle Co. experiments with taxicabs have been dropped.

DuPont Gets Leave from G.M. Duties

NEW YORK, Aug. 9—Alfred P. Sloan, Jr., president General Motors Corp., made the following announcement following the directors' meeting today:

"Pierre S. duPont submitted to the directors his resignation as chairman for the reason that he felt that his activities in connection with the Association Against the Prohibition Amendment might cause confusion in the public's mind and give the impression that General Motors was involved in the movement. The board felt that the position of the corporation having been stated was understood and that all should appreciate that Mr. duPont's activities in connection with that association's work were entirely those of an individual and they did not concern the corporation. The resignation was, therefore, not accepted and Mr. duPont was accorded a leave of absence instead."

The regular quarterly dividend on common stock of $1.25 was declared payable Sept. 12 to stockholders of record Aug. 18. In addition, regular quarterly dividends on senior securities were declared.

Wisconsin Parts Builds

OSHKOSH, WIS., Aug. 9—Wisconsin Parts Co., manufacturer of Wisconsin double reduction and worm drive axles, is building a 17,000 sq. ft. addition to the machine shops and a two story office building. Both buildings are of brick, concrete and steel construction. The buildings will be ready for installation of equipment about Oct. 1.

Studebaker Offers Buses

SOUTH BEND, Aug. 8—Studebaker Corp. of America has brought out two new school buses mounted on the new Studebaker 158 in. chassis and powered with the Studebaker Big Six 96 hp. engine. Capacities are 25 and 35 passengers. Hydraulic shock absorbers, four-wheel brakes, large windows, seats easily removable for cleaning, are some of the built-in features.

10,799 Miles of Road Are Now Under Way

WASHINGTON, Aug. 9—A total of Federal Aid for roads of $25,741,403 has been allotted as of June 30, the Bureau of Public Roads announced. Texas receives more of this amount than any other state, a total of $2,627,108, for a total mileage of 317.9. The total mileage provided for in the allotments as of June 30 was 3118.4. At the present time Federal Aid projects totaling $105,279,000 are under construction providing for 10,799 miles. There is a total of $53,643,770 in Federal Aid funds still available for new projects to the end of the fiscal year 1929.

Tariff Protection Asked by Czech Car Builders

NEW YORK, Aug. 7—Cables from Czechoslovakia indicate the continuance of conferences designed to bring about a curbing of imports of American automobiles to permit increased operation by domestic car builders. Attending the conference are manufacturers, importers and labor representatives and M. Novak, minister of commerce, is presiding.

The point has been made by labor representatives that restriction of imigration by the United States has made it necessary for European countries to protect industry within their boundaries by imposition of high tariffs against American products.

Reports at the conference indicated that automobile manufacturers in other European countries were experiencing similar difficulties because of American competition. Despite high tariffs American cars, especially lighter and lower priced vehicles, have been showing steady increase in sales where definite import quotas are unfixed. In countries where quotas are fixed almost every dealer has a waiting list.

Frank M. Leavitt

NEW YORK, Aug. 6—Frank M. Leavitt, for many years chief engineer for the E. W. Bliss Co., Brooklyn, died this morning after a protracted illness. Mr. Leavitt was 75 years old and spent all of his business career with the Bliss company, serving it for more than 50 years.

He was designer of the toggle press and of other machines for work with sheet metal.

Bliss to Manufacture Bristol Engine Here

Agreement is Signed With British Company Covering American Production

NEW YORK, Aug. 8—E. W. Bliss Co. of Brooklyn and the Bristol Airplane Co. of Bristol, England, have entered into an agreement giving the former company exclusive license for the manufacture and sale of Bristol Jupiter engines in the United States and its territories.

The Jupiter engine, which was one of the pioneers in static radial air-cooled type airplane engines, is widely used in Europe by commercial air transport companies, including Imperial Airways, Ltd., England; Royal Dutch Air Lines, Netherlands; and the Deutsche Luft Hansa, Germany.

It is a light-weight engine of nine cylinders, with bore of 5.75 in., stroke of 7.5 in. and develops 477 hp. at 1700 r.p.m. and 520 hp. at 1870 r.p.m. at ground level.

The E. W. Bliss Co. is one of the oldest American manufacturers of heavy machinery, having been established for over 75 years. The company operates plants in Brooklyn, N. Y., Hastings, Mich., Salem and Cleveland, Ohio, and Paris and London.

An official of the E. W. Bliss Co. stated today that the company's engineers have recently completed an extensive investigation of the principal types of airplane engines used on European air transport lines and have closely studied construction and assembly of Jupiter engines in the Bristol company's plant at Bristol, England, with a view toward their reproduction here.

"Under the licensing agreement," he stated, "the engineering and technical staff of the Bristol Airplane Co., Ltd., is made available to E. W. Bliss Co. The Bliss organization will manufacture these engines in its large torpedo plant and have available a trained personnel and a corps of experienced engineers for the production of Bliss-Jupiter engines under established Bliss standards of accuracy and expert workmanship."

The first shipment of model engines will be received shortly and it is expected the company will get Bliss-Jupiter engines under production within the immediate future.

Olds Shipments Exceed 1927

DETROIT, Aug. 10—Oldsmobile has shipped more than 60,000 cars in the first seven months of 1928, more cars than in any previous full year. May was the largest month this year with a total of 11,716.

La France Gets N. Y. Orders

NEW YORK, Aug. 8—Different boroughs of New York City have recently ordered 240 trucks, costing more than $1,175,000, from the American-La France & Foamite Corp., according to announcement by Charles B. Rose, president. The Borough of Manhattan has ordered 88 7½-ton trucks for the street cleaning department at a cost of more than $800,000, the Borough of Queens has ordered 16 2½-ton trucks and the Boroughs of Queens and Richmond together have ordered 15 7½-ton trucks. The city has ordered 15 75-ft. aerial trucks and six 700-gal. pumping engines. The cost of these units will be $240,000.

Canadian Assembly Started by Wright

NEW YORK, Aug. 7—The manufacture of Wright Whirlwind engines abroad has started with the assembly of the company's engine at Canadian Wright, Ltd., Montreal, Quebec. This is the first Wright engine produced under the license agreement of the Wright Aeronautical Co. of Paterson, N. J., giving foreign companies the right to manufacture and sell Whirlwind engines.

Canadian Wright, Ltd., will operate in Canada, Newfoundland and Australia and will take care of business originating in other sections of the British Empire.

Similar arrangements have been made with Skoda, Ltd., of Pilson, Czechoslovakia, which will supply a large part of central Europe, including the Balkan States and Finland.

The Soiete Francaise Hispano-Suiza of Paris, France, has a contract for the manufacture and sales rights covering Norway, Denmark, Sweden, France, Spain, Portugal, Greece, Belgium, Holland, Switzerland, Turkey and their colonies and dependencies.

Gardner Earns $201,574

ST. LOUIS, Aug. 7—Gardner Motor Co., Inc., reports net profit for the first six months of the year at $201,574 after depreciation and charges but before Federal taxes. This compares with $140,958 in the first half last year. Sales in the half totaled $3,270,382. The balance sheet as of June 30 shows cash of $1,253,818 as against $212,832 a year ago.

Curtiss Profits $591,844

NEW YORK, Aug. 7—Curtiss Aeroplane & Motor Co., Inc., reports net profit of $591,844 in the first half of 1928 after all charges and Federal taxes. This compares with $322,251 in the first half last year. The quarter ended June 30 showed net profit of $401,722 against $233,193 in 1927.

Motor Wheel Sets Record

LANSING, Aug. 7—Motor Wheel Corp. reports July sales of $2,700,000, the largest month in the company's history and 59 per cent over July, 1927. This brought sales for the first seven months to $16,000,000, an increase of 28 per cent over the same period last year.

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for AUTOMOTIVE INDUSTRIES.

NEW YORK, Aug. 9—Regardless of the seasonal dullness of trade, there is a prevalent feeling of hopefulness. The volume of trade in some lines is fair, while in a few it is even good. At this time a year ago trade was slowing down; now it tends to increase.

FREIGHT CAR LOADINGS

The American Railway Association reported that the loading of revenue freight for the week ended July 21 marked an increase of 9282 cars over the preceding week and 21,231 cars above the same week in 1927. This is the second consecutive week in which an increase was reported above the corresponding period last year.

PETROLEUM OUTPUT

The former upward revision of crude oil and gasoline prices was followed in the past week by a similar move on the part of a large number of other oil companies. An estimate by the American Petroleum Institute indicates a decrease of 15,600 bbl. in daily average crude oil production for the week ended July 28, as compared with the week before.

FISHER'S INDEX

Professor Fisher's index of commodity prices declined for the past week to 99.6, a deviation from its high of the two weeks previous of 99.9.

BANK DEBITS

Bank debits to individual accounts outside of New York City, as reported by the Federal Reserve Board for the week ended Aug. 1, were 1 per cent higher than for the same period last year.

FEDERAL RESERVE REPORT

The rediscount rate of the Cleveland Reserve Bank was raised to 5 per cent, effective Aug. 1. Despite this advance, the action of the Clearing House Committee, and other previous efforts to control the credit situation, last week was one of general credit expansion. The statement of the reporting Federal Reserve member banks for the week ended Aug. 1 showed increases for the week of $169,000,000 in loans and discounts and $56,000,000 in borrowings from the Reserve banks. Brokers' loans increased $75,477,000 in the face of a decrease of $53,259,000 in loans for the account of out-of-town banks.

Likewise, there was an increase of $43,600,000 in members' reserve deposits, $6,000,000 in Federal Reserve notes in circulation, and a decrease of $5,600,000 in total reserves. These brought the reserve ratio down to 68.6 per cent, as compared with 69.9 per cent for the previous week.

Chrysler Announces Dodge Resignations

Wilmer, Haynes and Waterfall to Retire — Lee to Continue Sales Director

DETROIT, Aug. 4—In a statement issued by Walter P. Chrysler, president and chairman of the board of the Chrysler Corp., the resignations of three principal executives of Dodge Brothers, Inc., are announced. They are E. G. Wilmer, president; Frederick J. Haynes, chairman of the board, and Arthur T. Waterfall, vice-president. The trio, the statement says, are fulfilling long desired wishes by retiring.

Mr. Chrysler's statement, which pointed out the duties that executives of the Chrysler Corp. will have in the operation of Dodge Bros. Corp., a subsidiary of the Chrysler Corp., also outlined the future policies of the Dodge corporation.

"Dodge Brothers will be maintained by the Chrysler interests as a separate organization, but under the direction and supervision of the officials of the parent company.

"Centralized management, while promoting greater efficiency and producing personnel, will in no way submerge the individuality of Dodge Brothers. Nor will the direction of the Dodge activity by Chrysler officials be permitted to deplete the personnel of the Chrysler Corp.

"With the acquisition of the Dodge properties by the Chrysler Corp. Mr. Wilmer, former Dodge president, announced his intention of fulfilling a long felt desire to retire from active direction of the Dodge business.

"Mr. Haynes likewise tendered his resignation, expressing the wish, after many years of faithful service as active executive head of Dodge Brothers, to relinquish his many duties as chairman of the board.

Waterfall Goes Abroad

"Mr. Waterfall, whose resignation had been presented to the Dodge Brothers board some time before the initial negotiation between the Chrysler and Dodge corporations, will take advantage of the opportunity offered by the realignment of the Dodge personnel, to spend a long contemplated holiday abroad.

"While all Dodge activities will be under the supervision of Mr. Chrysler and his associates in the Chrysler Corp., there will be no drastic changes in the internal personnel of Dodge Brothers.

"John R. Lee remains in charge of Dodge sales with the same factory and field organization which had built the Dodge business to its present position.

"The development of an expanded production program and readjustment of manufacturing facilities to give the greatest efficiency in the manufacture of quality motor cars are already well forward."

Mr. Haynes and Mr. Waterfall have been active for years in the National Automobile Chamber of Commerce, Mr. Haynes being a director, chairman of the patents committee and a member of the taxation committee. Mr. Waterfall is a member of the traffic and street traffic committees.

New Chrysler Cars Bring Record Sales

DETROIT, Aug. 4 — J. E. Fields, vice-president in charge of sales of the Chrysler Corp., said that sales following the introduction of the new Chrysler "75," "65" and Chrysler-Plymouth models exceeded the sales following any previous announcement of new models.

Capacity production will be necessary for some time to catch up with orders on hand.

Durant Output Gains 23,000 in First 6 Months

NEW YORK, Aug. 4—Durant Motors, Inc., reports a net gain in production for the first six months of 1928 of 23,000, or 49.9 per cent over the corresponding period of last year. This, according to T. S. Johnston, assistant to W. C. Durant, is 17 per cent of the total gain registered by the entire industry during the period.

As a result of this rapid growth in demand for Durant cars and Rugby trucks, all the plants of the company are working night and day, Sundays and holidays, and work on the addition to the Lansing plant is being rushed with all possible haste. This plant addition will increase the production capacity of the company by 1000 cars a day.

Olds Offers De Luxe Line

DETROIT, Aug. 4—A series of five de luxe models including phaeton, roadster, coupe, four-door sedan and landau are being announced by the Olds Motor Works. Prices are slightly higher than those of standard models and equipment includes such additional items as six wire wheels with spares mounted in fender wells, fully chromium-plated headlamps, spring covers, two-tone upholstery for enclosed models and Ducoed fenders, splash aprons, tie rod and gasoline tank cover.

Packard July Total 3805

DETROIT, Aug. 4—Packard Motor Car Co. shipped 3805 cars in July compared with 3080 in the same month last year. The company plans to ship at least 4800 cars in August.

Ludvigsen Joins Fuller

KALAMAZOO, Aug. 4—E. L. Ludvigsen has been made sales engineer for Fuller & Sons Mfg. Co. He was formerly connected with the White Motor Co., Cleveland.

Car for Every One Nearing, Says Chapin

Hudson Chairman Sees Continued Good Business—Visits Company Distributors

SAN FRANCISCO, Aug. 6—The annual expenditure of $1,000,000,000 or more on the building and maintenance of highways in the United States is making every farmhouse a potential market for at least one automobile, and pushing back further and further the mythical "saturation point," the bugaboo of the automobile manufacturer and merchandiser, in the opinion of Roy D. Chapin, chairman of the board of Hudson Motor Car Co., here on a tour of Hudson-Essex distributors in the West.

Optimistic in the extreme, Mr. Chapin said:

"Business is good with the automotive industry and will get better as time goes on. The general business outlook for the balance of 1928 is excellent, with all indications pointing to continued increase in automobile production, with a market waiting and ready to absorb all the cars as rapidly as they are produced. The export market also is opening with splendid sales opportunities for American cars. So rapidly is this overseas market growing that Hudson-Essex actually will export more cars this year than it built in 1919.

"The two-car family already is with us by the tens of thousands and the day of a car for every person in the family is just around the corner. The automobile industry as a whole may look forward with the utmost confidence to increasing production and widening markets. There is no such thing as a 'saturation point.' Increased road-building opens larger fields of driving possibilities, and the new type of super-highways, such as have been constructed in Michigan, for example, where speed limits have been removed and drivers may go as fast as is consistent with safety, make the motor car a speedier means of transport, as well as a pleasure and a necessity. Perhaps, in time, there will be a network of these superhighways uniting all parts of this country. Even now, remote farmhouses, isolated in former years, have concrete ribbons connecting them with railroads, and they have become potential markets, offering new prospects to the automobile salesman."

Graham Truck Output 6900

DETROIT, Aug. 4—Graham Brothers, truck division of Dodge Brothers, Inc., built 6900 units in July and enjoyed its largest sales in July for any month since June, 1926. Daily production of trucks and motor coaches averages 298 units. August output will be at the same rate.

Lower Prices Cause Tire Export Decline

Volume in First Half of 1928 Increases but Value Shows Reduction

WASHINGTON, Aug. 9—Due to a decline in prices of automobile casings and solid tires, the United States' exports of automobile rubber goods for the half year ended June 30 were more than $1,600,000 less than during the corresponding period of 1927, according to the rubber division of the Department of Commerce.

Rubber exports for automotive uses during the 1928 period totaled $20,813,769 while for the 1927 period the total was $22,426,099. All items of the rubber exports for automotive use, except miscellaneous casings and tubes, increased in both volume and value during the 1928 period, but the importance of the casings is evidenced by the fact that during the 1927 period they comprised approximately 80 per cent of the total value.

There was a drop in exports of automobile casings from a value of $17,945,302 during the first half of 1927 to $16,560,617, during the corresponding period of 1928, unit values remaining practically the same. This accounted alone for more than $1,300,000 of the $1,600,000 drop in total rubber automotive exports.

Exports of inner tubes increased from 804,992 units, valued at $1,665,300, during the first half of 1927, to 879,100 units, valued at $1,879,670, during the 1928 period. Solid tire exports for automobiles manifested the expected decline this year although the classification known as miscellaneous solid-tire exports increased from $186,000 in the first half of 1927 to $244,700 in the corresponding period of 1928. Exports of tire repair materials for the first half year of 1928 increased by 3 per cent as compared with the first half of 1927—from $897,461 in 1927 to $921,667 in 1928.

40,000 Tons of Rubber Used in July Operations

NEW YORK, Aug. 6—Forty thousand tons of crude rubber were used during July, according to the estimate of F. R. Henderson Corp., which believes that preparations are apparent for an equally busy August. As a result of this showing on consumption, prices in the crude rubber market stiffened at the close of last week and trading became more active. Tire factories continue operations at a high rate.

Shipments from the plantations to London are increasing and the London stock increased about 197 tons, bringing the total up to 35,445 tons.

Arrivals at all ports of the United States during July are estimated at 32,100 tons.

Car-Plane Beacons Planned on Coast

SAN FRANCISCO, Aug. 6—A chain of light beacons for aviators and motorists, each beacon to be surrounded by an airport, garages, service stations for planes and automobiles, with repair shops for both and a commodious hotel for travelers, is to be established from the Canadian border to the Mexican line, along the Pacific coast, by the Richfield Oil Co. Completion of the system, which is announced in an official statement by the oil company, will involve an expenditure of more than $10,000,000, which sum has been appropriated for immediate commencement of the work.

Timken Axle Earnings Increase to $716,410

DETROIT, Aug. 4—Timken-Detroit Axle Co. reports net earnings for the six months ended June 30, of $716,410. This compares with $660,011 in the same period of 1927. The company's financial condition has continued to improve, according to Col. Fred Glover, president.

Cash and certificates of deposit amount to $3,843,568, an increase of $219,461 since Jan. 1, with no debts other than for current liabilities. Net working capital is $8,907,002, an increase of $1,019,919 during the six months. The surplus account stands at $3,584,754 and the book value of the common stock is $14.30 per share. Common and preferred dividends have been paid amounting to $455,209, and $99,057 has been paid for the purchase of preferred stock for sinking fund purposes.

C.I.T. Buys Texas Company

NEW YORK, Aug. 4—Commercial Investment Trust Corp. has purchased through one of its subsidiaries, the retail automobile accounts held by the largest independent finance company in Texas, according to announcement by the corporation. These notes aggregate approximately $900,000. This Texas concern is discontinuing its business and C.I.T. will serve its clients.

G. E. Bonus $1,600,905

NEW YORK, Aug. 4—General Electric Co. has distributed a bonus of $1,600,905 among its employees of five years' service or more. This sum represents 5 per cent of the earnings of employees during the six months ended June 30 of this year.

Pontiac Has Wire Wheels

DETROIT, Aug. 4—Pontiac cars are now available with six wire wheels at extra cost, the two spares being mounted in fender wells.

Overland Earnings $5,641,517 in Half

Increase of $403,464 Shown Over 1927 Period—Increase Export Facilities

TOLEDO, Aug. 4—Remarkable gain in export business by the Willys-Overland Co. in the first half of 1928 was noted in the semi-annual statement this week. The company shipped 5556 cars abroad in July, showing a gain of 165 per cent over the same period last year. Contracts have been let for adding another story to the big new export building at a cost of nearly $500,000.

The company had net earnings of $5,641,517 after charges and Federal taxes for the first six months of 1928 as compared with $5,238,053 for the same period last year. After preferred dividends, earnings are equal to $2.01 a share or 81 cents more than the entire year's common dividend requirements at the rate set by directors on June 21.

This showing was made after rebates of $1,431,205 in January on account of cars in hands of dealers at time of drastic price cuts on the Whippets.

The company reported $14,117,790 cash on hand and in bank as of June 30 and had current assets of $45,741,200 compared with current liabilities of $18,361,728 or a ratio of 2½ to one. Bonds totaling $1,000,000 and $744,000 of preferred stock have been retired since Jan. 1.

President John N. Willys announced that 1885 new dealers have been added to the organization since the beginning of the year and that now the total sales force is 44 per cent greater than at the same time last year.

Builds Two-Speed Axle

CINCINNATI, Aug. 4—A new two-speed axle for automobiles has been developed in Cincinnati and is being manufactured here by the Two-Speed Axle Co., headed by Victor Murray. The axle consists of two rear axle ratios, one suitable for level or rolling country driving, the other for traffic and mountainous country. It is claimed by the inventor that the combination of direct drive gear ratios saves the engine an average 1000 revolutions per mile, resulting in a great saving in oil, gasoline and repair bills.

Goodrich Plans San Francisco Plant

SAN FRANCISCO, Aug. 4—A branch factory of the Pacific Goodrich Rubber Co. will be established in San Francisco soon, according to F. E. Titus, general sales manager of the Goodrich company.

"Volume of sales for July was the largest in the history of the San Francisco district," Mr. Titus said. "The new branch factory at Los Angeles has aided materially in putting consumer sales beyond all expectations."

Men of the Industry and What They Are Doing

E. R. Parker is Appointed Stutz Sales Manager

E. R. Parker, for many years well known in the automobile industry, has joined the Stutz Motor Car Co. of America, Inc., as general sales manager, it has been announced by E. S. Gorrel, vice-president. Mr. Parker's association with the industry dates back to 1910 when he traveled 12 southern states as a factory representative, resigning to become a distributor in Atlanta, and operated branches in Jacksonville and Birmingham.

Following this he was manager of factory branches at Boston and Cleveland for the Chandler Motor Car Co. and Studebaker Corp. of America, and then joined the Willys-Overland organization as branch manager and returned to Atlanta. When a distributorship replaced the branch there he assumed the duties of zone manager for Willys-Overland in several South Atlantic states. Mr. Parker has assumed his new duties.

Gartley Regional Sales Head

Willys-Overland Co. has promoted Perry C. Gartley to regional sales manager with headquarters at the home office in Toledo. Since 1926 Mr. Gartley has been manager of the Willys-Overland branch in Detroit and has been succeeded in Detroit by C. A. Best. Some years ago Mr. Gartley was located on the Pacific Coast with Maxwell, after which he joined Willys-Overland as manager for the Overland-Wisconsin Co. at Milwaukee in January, 1921. When the company was taken over as a factory branch in 1924 he became branch manager at Milwaukee, remaining until he came to Detroit. Mr. Best was associated with Mr. Gartley at Milwaukee as assistant branch manager and had held a similar position in Detroit.

Gleeson De Soto Manager

W. B. Gleeson, formerly secretary-treasurer of the Stinson Tractor Co., has been appointed Minneapolis district manager for the De Soto Motor Corp., with offices in the Lincoln National Bank building.

Kearney Back from Europe

E. J. Kearney, of Kearney & Trecker Corp., Milwaukee, who with his wife and family has been making a combination business and pleasure trip through several European countries, will return on the S.S. Aquitania, Aug. 11.

Hughes Joins Johnson

Victor Hughes, formerly a research engineer with the General Motors Research Corp., has joined the Johnson Motor Co., maker of outboard engines, as mechanical engineer.

Velie Field Force to Use Monocoupes

Velie Motors Corp. has a Velie Monocoupe for the use of the automotive sales department. W. L. Velie, vice-president, and F. E. Bradfield, general sales manager of the corporation, use the plane for business trips in the field. The Monocoupe often takes off in less than 100 feet, and so is quite practical for use in calling on dealers, even in districts that have limited landing fields. The company intends to equip all its field representatives with monocoupes.

Purdy Sees Exports Doubled

Hal L. Purdy, vice-president and general manager of Marmon Motor Car Co., returning from Europe, said he expected Marmon to double its European business in the next 12 months. Development of oil fields in Russia will aid in opening the market for automobiles in Europe, he said. The company has opened an office in Paris.

Boggs Takes Air Post

Marshall G. Boggs, chief Federal aircraft inspector for the Michigan, Ohio, Indiana and Kentucky districts, reports in Washington this week to take over his new position as assistant to E. P. Howard, chief of the aircraft regulations division of the Department of Commerce. He will be succeeded by H. P. Rough, of his staff.

Lay Returns to Franklin

R. P. Lay has been appointed assistant chief engineer of the H. H. Franklin Mfg. Co. Mr. Lay has been associated with Franklin in the past. He has served with Dodge Brothers, Inc.; Curtiss Aeroplane & Motor Co., Inc., and recently has been chief engineer of the Penn Spring Works.

Chevrolet Names McLaughlin

For the purpose of coordinating sales efforts of Chevrolet dealers in Columbus and vicinity, Chevrolet Motor Co. has named T. P. McLaughlin, formerly connected with the central offices at Detroit, sales manager for the Columbus district.

Franklin Men Hear Baker

Franklin service managers were addressed at their factory meeting by Cannon Ball Baker, who recently joined the Franklin staff.

Bauer on 4 Months' Trip to European Countries

George F. Bauer, secretary of the foreign trade committee of the National Automobile Chamber of Commerce, has sailed for Europe on a four months' trip. Most of the time between now and the World Motor Transport Congress to be held in Rome at the close of September he will spend in Poland, Latvia, Esthonia and other northern European countries. After the World Motor Transport Congress he will spend some time in France and Germany, probably attending a few of the European shows before he returns to this country. He is expected back here about the middle of November.

Benham to Visit Shows

Lloyd B. Benham, export manager for Franklin Automobile Co., will sail from New York Sept. 15 for a six-weeks' visit to France and England, during which he will attend the Paris and London shows. R. L. Edwards has been appointed assistant export manager. He has been associated for the past three years with the Har-Gold Co., New York.

Webb Leaves British Ford

E. Allan Webb, late tractor manager, Ford Motor Co., (England) Ltd., has joined Associated Equipment Co., Ltd., Southall, England, and will direct sales in the home market, while Walter L. Hill, late managing director, Muir-Hill (Engineers) Ltd., Manchester, manufacturer of tractor equipment, has been appointed to manage export business.

Anderson Goes Abroad

Dr. Robert J. Anderson sailed from New York Aug. 1, accompanied by Mrs. Anderson, for an extended business trip abroad. Dr. Anderson is vice-president in charge of production of the Fairmont Mfg. Co., Fairmont, W. Va., manufacturers of rolled aluminum products.

Bombay Dealers Visit Hupp

Among the visitors at the Hupp Motor Car Corp. factory have been Khanderae Krishnath Kirtikar and Makundrao Dadajee, partners in the firm of Dadajee Khackjee & Co., Hupmabile distributor in Bombay, and Ramrae Balajee Kothare, manager of the firm.

Tigert Resigns U. S. Post

Dr. John J. Tigert, who recently resigned as United States Commissioner of Education to assume the presidency of the University of Florida, was also chairman of the Highway Education Board and member of the committee in charge of the annual highway safety essay contest for students and teachers.

Financial Notes

Goodyear Tire & Rubber Co. reports net profit for the first half of 1928 as $3,074,200. This is after providing $4,690,966 for depreciation and charging off for special reserves $2,500,000 as cost of crude rubber in excess of the market price as of June 30. It is equivalent to 28 cents a share on common after a half year's dividend requirements on $7 cumulative first preferred stock and seven per cent cumulative preferred stock on which accrued dividends amount to 25 per cent. This compares with net income of $6,364,005 for the corresponding period a year ago.

Moto Meter Co., Inc., and subsidiaries, including the National Gauge & Equipment Co., report net income for the six months ended June 30, of $351,051 after all charges. This is equivalent to $1.75 a share on Class A stock and compares with $655,852, equivalent to $2.12 a share, on Class B stock in the first six months of 1927. Income for the second quarter was $109,309, equal to 54 cents a share, and compares with $335,704, or $1.07 a share, on Class A and 60 cents on Class B stock in the second quarter of 1927.

Auburn Automobile Co. reports net profit for the first half of the current year as $360,153 after all charges. This is equivalent to $2.68 a share on outstanding common stock and campares with $865,869, or $9.39 a share, on stock then outstanding, for the six months ended May 31, 1927.

General Motors Acceptance Corp. reports net profit for the six months ended June 30, as $5,223,420 after all charges. This is equivalent to $14.92 a share on common stock and compares with a profit of $3,197,711, or $9.13 a share, for the corresponding period in 1927.

Commercial Credit Co. and its affiliated companies report net income for the first six months as $1,609,395, as compared with $1,168,172 for the first six months of last year. Past due paper totaled $60,684 of $65,272,586 outstanding.

Mack Trucks, Inc., earned $2,830,055 in the first half this year as against $3,677,740 in the first half of 1927. Net profit in the second quarter was $2,084,383, against $2,218,435 in the second quarter last year.

Timken Roller Bearing Co. reports earnings of $6,395,573 in the first half this year as against $5,406,834 in the same period last year.

Kelsey-Hayes Wheel Corp. reports net profit in the first half this year of $447,066, after expenses, Federal taxes and other charges. This compares with $573,164 in the same period last year after expenses but before Federal taxes. Prospects are for increased earnings in the second half.

Hart-Parr Co. will offer a new financing plan, which will provide for offering subscription rights to common stockholders. No definite plan had been decided upon and it will be several weeks before an announcement is expected. The original plan in addition to providing for the issuance of new $6 preferred stock, included a proposal for an increase in the common stock to 500,000 shares. Of this sum 240,000 shares were to be held in the treasury and offered for cash from time to time at a price to be decided upon by the directors.

Federal Motor Truck Co. reports net income for the first half of 1928 as $214,203, equal to 45 cents a share on capital stock. This compares with net income of $447,556, or 99 cents a share, for the year ended December 31, 1927.

Evans Auto Loading Co. stockholders have approved an increase in capital stock from 100,000 shares of $5 par to 200,000 shares. A 100 per cent stock dividend will be paid Sept. 1 to stock of record Aug. 15. The company reports net earnings for the first six months of 1928, after charges and Federal taxes, of $491,536, equal to $4.91 a share, compared with $375,808 or $3.75 a share in the like period of 1927.

American Cars Comprise 15.3% of French Registry

WASHINGTON, Aug. 9—France and French colonies had 718,791 passenger automobiles registered on Jan. 1, 1928 and 15.3 per cent of this number were products of the United States, according to the Department of Commerce. Only 3.2 per cent of the 12,656 buses under the French flag were American products but of the 303,073 trucks in France and its colonies 15.5 out of every hundred came from the United States.

France proper registered 656,000 passenger cars, 15 per cent being made in the United States; 10,000 buses, none coming from this country; and 290,000 trucks, 15 per cent being American made. The rest of the cars and trucks were scattered from French Indo-China to French West Africa among the French possessions.

Nash Has 32,360 Orders

KENOSHA, Aug. 7—C. W. Nash, president of Nash Motors Co., in a letter to stockholders, reports orders in July exceeded production by 12,000. Shipments during the month totaled 18,000. He reported the outlook for the company to be bright. Orders for August now on hand are reported exceeding 32,360.

N.S.P.A. to Stage Campaign

DETROIT, Aug. 6—The National Standard Parts Association will inaugurate a comprehensive campaign in September for the purpose "of telling the aims and purposes and explaining the products and services of the association."

Diamond Buys Muffler

ST. CLOUD, MINN., Aug. 6—Diamond Motor Parts Co. has absorbed the Security Muffler Corp., Ithaca, N. Y., President George Bouthinon announced, and the equipment will be moved here by Jan. 1. The Diamond company will utilize the Security warehouses in Utica, N. Y., and Chicago. Mr. Bouthinon says the absorbed company's annual business is $300,000, and it will bring the Diamond annual business to above $2,000,000.

Erskine Heads Board of New Pierce-Arrow

Studebaker to Aid Manufacture and Sale—Forbes Continues President

BUFFALO, Aug. 7—Pierce-Arrow Motor Car Co. and the Studebaker Corporation of America became associated today when the stockholders of Pierce-Arrow approved reorganization plans. Under the plans adopted Studebaker will invest $2,000,000 in the new company, receiving in return all the class "B" stock. While the arrangement is not a merger, Studebaker's large selling and production facilities will back Pierce-Arrow.

Under the terms of reorganization each holder of the present 8 per cent preferred stock of Pierce-Arrow will receive for each share and all unpaid dividends $10 a share in cash and eight-tenths of a share of 6 per cent preferred stock of the new company. Each holder of the present common stock will receive six-tenths of a share of class "A" stock in the new company for each share held. Studebaker will invest $2,000,000, receiving in return 230,125 shares of class "B" stock.

Class "A" stock has one vote and class "B" stock two votes in all company affairs. The class "A" will be on a $2 annual dividend basis and will be redeemable any time before Dec. 31, 1932, at $40 a share.

A. R. Erskine, president of Studebaker, is chairman of the board of the new company, and Myron E. Forbes remains president. Certain economies will be put in effect immediately as the result of the formation of the new company. These will result from large sale buying for both companies and also certain materials the Studebaker company will furnish Pierce-Arrow, such as castings and other semi-manufactured goods.

One of the objects will be to get production in the Pierce-Arrow plant up to 15,000 units a year. It is estimated that Pierce-Arrow may produce 20,000 units a year utilizing the same plant space and facilities it now has. If production can be stepped up to 15,000 units annually it is felt that Pierce-Arrow will be able to show a much better net profit annually. Large additions to the Pierce-Arrow plant were made during the war.

Carbon Monoxide Film Ready

WASHINGTON, Aug. 9—To educate the public in the subtle and unseen dangers of carbon monoxide gas, the Department of Commerce through the bureau of mines has completed a film in cooperation with a large automobile manufacturing company. The film is available for showing by schools, churches, clubs and other organizations. Copies may be obtained from the Pittsburgh station of the Bureau of Mines.

Automotive Demand Keeps Steel Active

Sheet Specialists at Capacity and Price Advances Seen as Development

NEW YORK, Aug. 9—Steel continues to flow into automotive consumption at a high rate. This is borne out by the position of mills specializing in the production of full-finished automobile sheets. They are operating at capacity and the slight inroads made upon their output by the heat have, temporarily at least, aggravated their problem of making shipments as promptly as most of their customers want them. Shipments of black and blue annealed sheets also continue in good volume.

One hears more talk of impending advances, especially in full-finished automobile sheets. Consumers do not appear to be greatly perturbed over this, feeling secure so far as their third-quarter requirements are concerned and not worrying very much so far about the fourth-quarter market. The steel industry, as a whole, is by no means as well off as those of its branches which cater more or less to automotive consumers, and it is recognized that, if a mark-up in prices is to succeed, it must embrace the entire market structure.

There is very much room for improvement in the demand from many steel-consuming industries and the necessary support for price advances must come from an all-around broadening of buying. There is no question that the market for sheets, strip steel, cold-finished steel bars, etc., is stronger today than it was a month ago, chiefly so in response to the stiffening of prices for semi-finished material. As usual when there is Ford buying, there are rumors of price concessions but this consumer has fared no better than others, save that in some isolated instances a mill might have yielded its freight advantages over others to the buyer. In fact, if there should be any immediate change in sheet and strip prices it is generally looked for to be in an upward direction.

Pig Iron—The majority of automotive industries are melting iron at a somewhat better rate than is usual at this time of the year. The market is easy at unchanged price levels.

Aluminum—The market appears to be marking time in all of its departments. The sole American producer maintains prices at previously named levels.

Copper—Consumers are showing somewhat more interest in September shipments. Producers are holding their prices unchanged at 14¾ cents, delivered Connecticut, and 14¾ @ 14⅞ cents, delivered Middle West.

Lead—Storage battery manufacturers seem to be well covered for the current month and have not yet entered the market for their Sept.-Oct. requirements. The market is firm and unchanged.

Automotive Group Off 17% in 1927

WASHINGTON, Aug. 9—Because of the temporary cessation in production of Ford automobiles during 1927, the automotive vehicle group production declined 17 per cent in 1927 as compared with 1926, the Department of Commerce Yearbook, just issued, shows. The yearbook, however, shows increases in the gasoline, tire casing, and motor truck and bus manufacturing industries.

The production of gasoline increased 10.3 per cent in 1927 over 1926, according to statistics; the output of rubber tire casings increased 5.1 per cent and the production of motor trucks and buses increased 7.1 per cent

Rail Dispute Threatens New England Shipments

NEW YORK, Aug. 4—Delays of form two to five days on over 2000 carloads of automobiles shipped from plants in Michigan to New England points via the New York, New Haven & Hartford Railroad will result if through rates via Niagara Frontier are canceled as proposed, J. S. Marvin, assistant general manager of the National Automobile Chamber of Commerce, told the New England Freight Association at a meeting in Boston, July 31. The proposed cancellation is due to the fact that on April 1, 1922, the Interstate Commerce Commission granted the New York, New Haven & Hartford a 15 per cent increase in its proportion of western rates but disclaimed any jurisdiction over shipments passing through Canada. This road has maintained that it is entitled to the same proportion via those routes and, failing to persuade its connections, has threatened to cancel rates for this type of shipment and force all shipments over its lines over the longer all-American routes.

This would result not only in loss of time in delivery of cars to territories served by this road, according to Mr. Marvin, but would apply equally to westbound shipments of hardware and other supplies purchased from New England manufacturers and might jeopardize that market for these shippers. A large gathering of New England shippers attended the hearing urging carriers to settle their differences without impairing the through service over the shortest routes to Michigan and other western points.

New Belt Cutter Ready

GRAND RAPIDS, Aug. 4—The Clipper Belt Lacer Co. has designed a new 10-inch open end clipper belt which is now ready for delivery.

Sales in Missouri Show Drop in June

Registrations Reach 52,861 Against 58,979—Kansas City Sales 1567

KANSAS CITY, Aug. 4—Chevrolet continues to lead the field in automobile registrations in Kansas City but with Ford increasing its totals monthly. The figures for June, just announced, show a total new car registration of 1567.

The state figures for the month were 52,861 against 58,979 for June 1927.

The Kansas City registration on the leading makes, compared with last year, follows:

Make of Car	1928	1927
Auburn	6	5
Buick	69	92
Cadillac	8	6
Chandler	13	4
Chevrolet	382	321
Chrysler	57	46
Dodge	54	47
Durant	8	..
Erskine	9	2
Falcon-Knight	6	12
Ford	229	113
Franklin	4	3
Gardner	2	2
Graham-Paige	29	5
Hudson-Essex	111	86
Hupmobile	23	15
LaSalle	10	6
Lincoln	3	3
Marmon	10	12
Moon	8	2
Nash	41	33
Oakland	12	18
Oldsmobile	79	33
Packard	19	5
Peerless	10	15
Pierce-Arrow	11	10
Pontiac	66	29
Reo	13	17
Star	21	18
Studebaker	28	18
Stutz	3	
Whippet	186	70
Willys-Knight	23	11
Misc.	14	

Cleveland Sales Gain 30%

CLEVELAND, Aug. 4—July business in both new and used cars broke Cleveland records, according to the figures compiled by the Cleveland Automobile Manufacturers & Dealers Association. New car bills of sale totaled 3998 as compared with 3064 for July of last year, an increase of slightly better than 30 per cent.

Used car sales are declared to be the best within records of the local trade association. During July 13,217 bills of sale for used cars were filed, as compared with 10,579 for July last year.

William H. Fauber

NEW YORK, Aug. 4—William H. Fauber, holder of several basic patents for hydroplanes, died at his home in Brooklyn yesterday after an illness of two weeks, in his sixty-sixth year. He is survived by a widow and two sisters. Mr. Fauber came into the aviation field from the manufacturing field, where he made articles for bicycles.

Everitt Heads New Verville Aircraft

Company Will Manufacture Low Priced Planes Designed by A. V. Verville

DETROIT, Aug. 6—B. F. Everitt, pioneer automobile manufacturer, has been elected president and general manager of the Verville Aircraft Co. which has purchased the Rickenbacker Motor Co. plant on Cabot Ave. The company will manufacture small low-priced planes and flying boats. The Rickenbacker property was acquired at a receiver's auction sale for $600,000 by the Briggs Commercial & Development Company for the Verville company.

Alfred V. Verville, prominent aircraft designer and for whom the company is named, is in charge of engineering. Besides Mr. Everitt and Mr. Verville, who is secretary of the company, the other officers are James Goudies, vice-president, and Harry Griffiths, treasurer.

The Rickenbacker plant affords 300,000 sq. ft. of floor space which will make the Verville company the largest aircraft manufacturing plant in Detroit and one of the largest in the country. Facilities and space will permit production of 100 planes daily, and production will be increased to that figure whenever the market warrants it, according to Mr. Everitt.

Details of the new plane and its selling price are to be announced in 90 days, when the first plane is scheduled to take the air.

Mr. Everitt has been identified with the automobile industry from its infancy. He became prominent through his association with the E-M-F company, which was later acquired by the Studebaker interests. More recently he has been president and general manager of the Rickenbacker Motor Co., which liquidated.

Mr. Verville, who designed the new machine, has been active in the aircraft business since 1915, when he designed the first flying boat built in Detroit. He served in the engineering department of the Army Air Corps during the World War and designed several of the government's most efficient fighting and transport planes.

The Sperry Messenger, one of the first light planes built in this country, was designed by Mr. Verville for the government. Two of his designs won the Pulitzer race in 1920 and in 1924. He was in charge of racing and pursuit designs for the government eight years, and during that period was a member of the Gen. William Mitchell and the Lockhard Aviation Missions to Europe.

Fruehauf Plans Branch

LOUISVILLE, KY., Aug. 6—The Fruehauf Trailer Co., Detroit, has announced plans for establishment of a branch plant in Louisville for distributing and assembling trailers. The company has had a sales representative in Louisville for about three months, and in view of the fact that it uses Shuler axles, made in Louisville, as standard equipment, it was felt that Louisville would be a good assembling and distributing point for trailers and parts. Lee D. Hehman will be in charge of the Louisville division. Last year the company did a business of $3,500,000, whereas sales by July 15 of this year were 30 per cent ahead.

Cooper Now Building Dry Storage Battery

CINCINNATI, Aug. 4—Discovery by Major E. L. Hoffman and Frank S. Crispin, of a formula permitting the manufacture of automobile batteries which require moistening with a tablespoon of water, only four times a year, has enabled the Cooper Corp. of Cincinnati to offer what is said to be the first successful dry battery since the development of the automobile. The battery, scientifically known as a dry power unit, is the same size as standard batteries. The new dry power was discovered during extensive experiments at McCook Field, in the search for a dry battery for airplanes.

Major Hoffman is the man who was awarded a cup by President Coolidge for his development of a parachute a year ago and Crispin is known nationally as a chemical engineer.

Moon Adds New Sedan

ST. LOUIS, Aug. 4—Moon Motor Car Co. has added a seven-passenger 8-80 Moon-Aerotype sedan, the chassis of which is 12 in. longer than the five-passenger model.

Bradfield to Make Low-Priced Taxis

Company Headed by Former Yellow Cab Executive Also Plans Trucks and Buses

CHICAGO, Aug. 9—H. C. Bradfield, former general sales manager for the Yellow Cab Mfg. Co., with several former associates, has formed the Bradfield Motors, Inc. The headquarters of the company will be in the Otis Building here. George Daubner, former chief engineer in charge of taxicab activities of the Yellow manufacturing organization, will be vice-president of Bradfield Motors, and M. B. Kennedy, former general counsel for the General Motors Truck Co., is secretary and general counsel.

Bradfield Motors, Inc., will manufacture and merchandise taxicabs, motor coaches and motor trucks. While it is too early to secure details of the vehicles, they have been undergoing tests, it is said, since early in the year.

Bradfield taxicabs will sell in price classes commensurate with the low rates of fare prevailing in taxicab operation today, according to officials of the company. "The cabs", according to Mr. Daubner, are designed to be striking in appearance. "It is our aim," says Mr. Daubner, "to have operators put on the streets taxicabs that will have public appeal—make them so comfortable and easy to ride in that public patronage will want to repeat riding in these vehicles. We are paying particular attention to giving the driver driving comforts. We offer a good comfortable seat with driving controls easily located."

Automobile Ship 125 ft. Long is Designed for Desert Travel by German Engineer

WASHINGTON, Aug. 9—A well-nigh incredible report of the design of a giant automobile ship of the desert with wheels standing as high as the average city house and with a 5000 to 7250-mile cruising radius has been made public by the Department of Commerce on advice from H. C. Schuette, assistant trade commissioner at Paris.

This automobile, or desert liner, is reported to have been designed by a German engineer. Its dimensions are said to be 125 ft. long, 25 ft. wide and 45 ft. high, mounted on wheels 12 meters, or 39.37 ft., in diameter.

It will be shaped like a ship. It will need no roadway or rails to travel on. Its speed will be approximately 16 m.p.h. Intended primarily for desert travel, this great grandfather of all automobiles will be capable of climbing 30 per cent grades and compensation devices will keep the mammoth body at a convenient angle allowing the wheels at all times to adhere to the ground.

There will be two engines—Diesel type—of 450 hp. each, the second being kept for emergency and two dynamos to supply light and electro-motor power. Steering will be effected by a hydraulic device.

As for its capacity, it is planned to have room for 250 persons—passengers and crew members—and 200 tons of merchandise in addition to vast reservoirs for fuel and water.

The Department of Commerce report indicates that the new ship of the desert will have all the attributes of a real ship of the sea. Giant cranes will be provided on both sides for hoisting in the supplies. There will be four decks, with the direction cabin, wireless room, commander's cabin, officers' cabins, and four de luxe cabins, bath rooms, office, baggage room and promenade on the uppermost deck. There will be cabins, a dining room, a kitchen, a large sitting room, reading room, smoking room, "cooling room"—refrigerated like some summertime theaters—and baggage room on the two intermediary decks. The lower deck will house the storerooms, the steerman's room, tanks, and so forth.

Aeronautic Chamber Plans Chicago Show

CHICAGO, Aug. 8—An aeronautical show will be held in the Coliseum here Dec. 1 to 9, immediately preceding the International Air Conference President Coolidge has summoned to meet in Washington, Dec. 12 to 14. The exposition will be similar to the annual automobile show, and 40 representatives of as many foreign air ministries will be invited to attend, Luther K. Bell, secretary of the Aeronautical Chamber of Commerce, said in announcing plans for the affair. Mr. Bell, a former Chicago and Indianapolis newspaper man, later with the air mail service and then traffic manager of National Air Transport when it was organized, stated that the Aeronautical Chamber of Commerce will finance the show.

To Stage Truck Exhibit

INDIANAPOLIS, Aug. 6—Manufacturers, distributors and operators will attend the Mid-West Motor Truck Transportation Congress to be held in Indianapolis Oct. 23-26. Economical and prompt delivery will be the main theme of the congress, which will also include an exhibit of trucks and equipment adaptable to every line of business. The event is being conducted under the auspices of the Motor Truck Association of Indiana, Inc., the Ohio Association of Commercial Haulers, Inc., and the Motor Truck Club of Kentucky, Inc.

Manganese Makers to Meet

WASHINGTON, Aug. 4—The annual meeting of the American Manganese Producers Association will be held at the Mayflower Hotel here Sept. 10 and 11. A review of the industry will be presented at this meeting. All persons interested in the development of domestic manganese are expected to be present.

Coming Feature Issues of Chilton Class Journal Publications

Oct. 10—Marketing Annual for 1929—Motor World Wholesale.

Nov. 17—Production and Factory Equipment Issue—Automotive Industries.

Keystone Aircraft Builds New Convertible Plane

NEW YORK, Aug. 7—The Keystone Aircraft Corp. of Bristol, Pa., has just produced for the United States Navy an all-purpose convertible land and seaplane, said to be one of the most versatile ships ever built in this country.

The plane, known as the Keystone Pup, is designed to afford instruction facilities in fixed and flexible gunnery, bombing, spotting and aerial photography. It is powered by a Wright J-5 Whirlwind engine.

The Pup is designed for the addition of a fixed machine gun in the fuselage, firing through the propeller by means of triggers on the control stick and a flexible machine in the rear cockpit. Bomb racks for light bombing may be installed as an additional offensive measure.

Triplex Sales Gain 2195%

NEW YORK, Aug. 7—Triplex Safety Glass Co. of North America did 20 times the business in July, 1928, that it did in July, last year, according to announcement made yesterday. Actual increase in the sales were reported as 2195 per cent. The company plant at Clifton, N. J., which has been in operation for about two months, is now turning out about 12,000 ft. of Triplex a day and should reach full capacity by October.

M.&A.M.A. Schedules Credit Conference

NEW YORK, Aug. 7—The annual conference of the credit managers of members of the Motor & Accessory Manufacturers Association is to be held this year at the Hotel Statler, Buffalo, Sept. 12 to 14.

Following the usual program, Wednesday and Friday will be given over to credit group meetings and Thursday will be devoted to the general meeting for all credit managers and to a number of special speakers. In this way, all credit managers will be enabled to attend the general meeting and their own group meetings at the sacrifice of only two days.

Speakers for the general meeting have not yet been determined.

Fabric Companies Merge

INDIANAPOLIS, Aug. 6—Gates Mfg. Co. and the Habig Mfg. Co., manufacturers of automobile fabric and automobile fabric accessories, have merged as the Fabric Products Corp. The executive personnel of the Habig Mfg. Co. will conduct the management of the new business, and the sales and factory organizations of both companies will participate in the expansion program that is planned. The manufacturing activities of the company will be conducted at the Gates plant. The Union City Garment Co., Inc., Union Inc., Union City, Ind., is affiliated.

Durant Forms German Company

NEW YORK, Aug. 8—German automobile papers announce the incorporation of the firm of Durant Automobiles, Inc., with a capital stock of 50,000 marks, to manufacture and sell automobiles and accessories and especially of Durant automobiles in Germany. The company is authorized to participate in similar firms in any desired way.

Calendar of Coming Events

SHOWS

American Electric Railway Ass'n, Public Auditorium, Cleveland..Sept. 22-28
American Road Builders Association, Inc., Cleveland Auditorium..Jan. 14-19
American Society for Steel Treating, Commercial Museum, Philadelphia .....Oct. 8-12
American Welding Society, Commercial Museum, Philadelphia.....Oct. 8-12
Automotive Equipment Association, Coliseum, Chicago .....Oct. 22-27
Berlin .....Nov. 8-18
Brussels .....Dec. 8-19
Buenos Aires .....Nov. 29-Dec. 9
*Chicago, National, Coliseum, Jan. 26-Feb. 2
Leipzig .....Aug. 26-Sept. 1
London, passenger cars .....Oct. 11-20
Montevideo .....Nov. 10-19
National Standard Parts Association, Cleveland Auditorium...Oct. 29-Nov. 3
*New York, National, Grand Central Palace .....Jan. 5-12
Paris, passenger cars .....Oct. 4-14
Paris, trucks .....Nov. 15-25
Prague .....Sept. 1-9
Salon, Automobile Salon, Inc., Hotel Drake, Chicago .....Jan. 26-Feb. 2
Salon, Automobile Salon, Inc., Hotel Biltmore, Los Angeles.....Feb. 9-16

* Will have special shop equipment exhibit.

Salon, Automobile Salon, Inc., Hotel Commodore, New York .....Dec. 2-8
Salon, Automobile Salon, Inc., Palace Hotel, San Francisco...Feb. 23-Mar. 2
Toronto, Can. .....Aug. 24-Sept. 8

CONVENTIONS

American Electric Railway Ass'n, Public Auditorium, Cleveland...Sept. 22-28
American Gear Manufacturers Association, Statler Hotel, Buffalo, N. Y., Oct. 11-13
American Institute of Mining and Metallurgical Engineering, Benjamin Franklin Hotel .....Oct. 8-12
American Road Builders Ass'n, Inc., Cleveland Auditorium .....Jan. 14-19
American Society for Steel Treating, Commercial Museum, Philadelphia .....Oct. 8-12
American Welding Society, Commercial Museum, Philadelphia.....Oct. 8-12
Automotive Equipment Association, Coliseum, Chicago .....Oct. 22-27
Machine Tool Congress, joint meeting with Machine Shop Practice Division, American Society of Mechanical Engineers, Cincinnati, Sept. 24-27
National Highway Congress, Mexico City .....Oct. 3-6
National Safety Council, National Congress, New York .....Oct. 1-5
National Standard Parts Association, Hollenden Hotel, Cleveland, Oct. 29-Nov. 3
Society of Industrial Engineers, Rochester, N. Y. .....Oct. 17-19
World Motor Transport Congress, Rome .....Sept. 25-29

A. S. M. E.

Cincinnati, Oct. 22-25—Machine Shop Practice.
Cleveland, Sept. 17-20—Fuels.

S. A. E.
National

Chicago, Dec. 6-7—Aeronautic.
Detroit, Book-Cadillac, Nov. 22-23—Production.
Detroit, Book-Cadillac, Jan. 15-18—Annual.
Los Angeles, Sept. 13-14—Aeronautic.
Newark, Robert Treat Hotel, Oct. 16-18—Transportation.
New York, Hotel Astor, Jan. 10—Annual Dinner.

RACES

Altoona .....Aug. 18
Great Britain .....Sept. 22
Italy .....Sept. 2
Salem .....Oct. 12
Syracuse .....Sept. 1